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Draft Supplemental Environmental Impact Statement

Miller West Fisher

**Libby Ranger District, Kootenai National Forest
Lincoln County, Montana**

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**Miller West Fisher Project
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

**Kootenai National Forest
Libby Ranger District
Lincoln County, Montana
November 2013**

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Abstract: The Miller West Fisher Project EIS documented the detailed analysis of five alternatives, including a no action alternative, developed for the Miller West Fisher Project. Alternative 1 is the no action alternative. Alternative 6 is the preferred alternative and includes commercial timber harvest, prescribed burning, temporary road construction, road reconstruction and repair (BMP work), watershed improvements including road storage and decommissioning, precommercial thinning, trail reconstruction, trailhead parking improvements, campground improvements, and pool creation in Miller and West Fisher Creeks.

The Miller West Fisher Project Record of Decision (ROD) selected Alternative 6 with modifications (Alternative 6-modified). The legal notice of decision was published in the newspaper of record on June 11, 2009. The ROD was appealed and the decision affirmed. Following this administrative review the decision was litigated in District Court. On June 29, 2010, Montana District Court Judge Donald W. Molloy remanded the Miller West Fisher Project to address five deficiencies in the project analysis: 1) An explanation of why helicopter logging would not cause harm to grizzly bear; 2) An incidental take statement from U. S. Fish and Wildlife Service (USFWS) is required for projects located in areas outside the grizzly bear recovery zone that are occupied by grizzly bears; 3) A discussion of the weaknesses in the Wakkenin and Kasworm (1997) study; 4) An explanation of why the Forest Service assesses cumulative effects at the Bear Management Unit level; and 5) A demonstration of how Miller West Fisher project is in compliance with the Forest Plan, particularly whether the project is compatible with grizzly bear needs. This Draft Supplemental Environmental Impact Statement (DSEIS) provides additional documentation of the grizzly bear analysis to address the deficiencies identified by the court. This supplement also updates the grizzly bear habitat analysis.

Comment Process: It is important that reviewers provide their comments at such times and in such a way that they are useful to the Agency's decision making. Therefore, comments should be provided prior to the close of the comment period and should clearly articulate the reviewer's concerns and contentions. The submission of timely and specific comments can affect a reviewer's ability to participate in subsequent administrative review or judicial review.

Comments received in response to this solicitation, including names and addresses of those who comment, will be part of the public record for this proposed action. Comments submitted anonymously will be accepted and considered; however, anonymous comments will not provide the respondent with standing to participate in subsequent administrative review or judicial review.

Send Comments to: John W. Carlson, Acting District Ranger; Libby Ranger District; 12557 Highway 37; Libby MT 59923; or email: comments-northern-kootenai-libby@fs.fed.us

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Introduction

This document supplements the grizzly bear analysis presented in the May 2009 Final Environmental Impact Statement (FEIS) for the Miller West Fisher Project and addresses five deficiencies (Counts) noted during the previously mentioned litigation of this project.

Briefly, on June 29, 2010, Montana District Court Judge Donald W. Molloy, in the court case *Alliance for the Wild Rockies (AWR) v. Paul Bradford*, Case CV 09-160-M-DWM, remanded the Miller West Fisher Project to address the five deficiencies listed below:

- Provide further explanation for why helicopter logging would not cause harm to grizzly bear (Count I);
- An incidental take statement from U. S. Fish and Wildlife Service (USFWS) is required for projects located in areas outside the grizzly bear recovery zone that are occupied by grizzly bears (Count II);
- Discuss the limitations in the Wakkinen and Kasworm (1997) study (Count III);
- Explain the appropriateness of assessing cumulative effects at the Bear Management Unit level (Count IV);
- Demonstrate compliance with the Forest Plan, showing that the project is compatible with grizzly bear needs (Count V).

In addition to addressing this ruling, this Draft Supplemental EIS includes an updated grizzly bear analysis, clarifying the grizzly bear effects discussion.

Public Involvement

The public was notified of the intent to prepare a supplemental environmental impact statement through publication in the *Federal Register* (April 1, 2011). No public comment was received.

See FEIS Chapter 4 and the project file for earlier public involvement activities for this project.

The following table lists the Miller West Fisher Project environmental analysis and decision documentation:

Table 1: Miller West Fisher Project Environmental Document Release

	DOCUMENT and RELEASE DATE
DEIS	Miller West Fisher Project Draft EIS, February 2009
FEIS	Miller West Fisher Project Final EIS, May 2009
ROD	Miller West Fisher Project Record of Decision, June 2009. Remanded by court June 2010.
DSEIS	Miller West Fisher Project Draft Supplemental EIS, November 2013. Updates grizzly bear analysis from FEIS, and addresses deficiencies delineated in court ruling.
PF	Miller West Fisher Project File

Authorized Activities

The Miller West Fisher Project decision of June 2009 authorized the following activities in Alternative 6 modified (ROD Section I) to meet the project purpose and need (DEIS Chapter 1). Harvest, pre-commercial thinning and prescribed burn activities are displayed on the Alternative 6 modified map at the end of this document:

- Timber harvest and associated fuel treatment on 1,898 acres, including intermediate harvest on approximately 1,206 acres and regeneration harvest on approximately 692 acres to reduce tree density, restore and maintain fire-adapted vegetation such as ponderosa pine and western larch, replace stands with moderate to high levels of insect and disease, and contribute timber to the local and regional economy. This harvest is dispersed over the 69,419 acre project area. These activities would contribute approximately 8.2 million board feet (MMBF) or 16,485 hundred cubic feet (CCF) of timber products to the economy including helicopter logging. If helicopter

logging is infeasible due to fuel prices and economic conditions, the project would contribute 6.5 MMBF or 12,995 CCF of timber products to the economy.¹

Approximately 38% of this harvest will be accomplished with ground-based systems. In areas with steep slopes, lack of access, or for resource protection, approximately 17% will be yarded by helicopter and 45% by skyline. An estimated 38% of the harvest will be restricted to winter harvest to protect resources.

Approximately 12 temporary roads totaling approximately 3.29 miles will be constructed to accomplish this harvest. These roads will be obliterated following harvest to reduce erosion risk. Best Management Practice (BMP) and road maintenance work will be applied to approximately 38.99 miles of haul roads.

- Pre-commercial thinning on approximately 351 acres to improve growing conditions and restore shade-intolerant species in managed sapling-sized stands.
- Prescribed fire would be used to reduce hazardous fuel loadings, create fuel breaks along ridge lines, restore natural fire regimes, and create forage for big game and other wildlife. Prescribed fire would be completed on 2,830 acres and would be spaced over time to avoid displacing big game from the entire burn area at any given time.
- Watershed rehabilitation, including road decommissioning and intermittent stored service (storage) work. Decommissioning work is authorized on Rd. 6744 in the Standard Creek area (approximately 1.43 miles). This road is closed to motorized traffic and has two stream crossings, which will be restored. The work will also include out-sloping portions of the road prism and installing ditch-intercept water bars.

Road storage will occur on 15 road segments totaling 19.64 miles. Seven road segments, totaling 10.88 miles, would be completed with the timber sale. Of these, one segment (5326, 1.07 miles) would be completed with the first timber sale independent of the Montanore power line route chosen. The remaining six road segments (4725, 5200, 5007, 5007A, 5198, 5199; totaling 8.76 miles) and the timber harvest units accessed by those roads, would only be completed when it is determined that the Montanore power line would NOT be constructed on the North Miller route. This road storage work is dependent on creation of additional grizzly bear core habitat through closure of road 4725, which would not be possible with construction of the North Miller power line route.

The storage of road segments 148A, 2314M, 6744, 99816, 99816A, 99803, 99803A and 99813, will be completed as funding becomes available. Based on past experience, it is likely that this watershed restoration work will be funded and will occur within the next 3-7 years. This additional watershed restoration work is an opportunity to reduce sediment, but is not mitigation for the timber sale.

- Pool creation in Miller Creek and stream bank stabilization in West Fisher Creek are included. Pool creation in Miller Creek would be completed by hand through placement of logs and rocks in the stream channel. This work is designed to improve overall fish habitat conditions and to meet riparian management objectives for numbers of pools in Miller Creek. Stream bank stabilization in West Fisher Creek would be completed using an excavator to place rock veins in the stream to divert water from an eroding stream bank that is responsible for depositing sediment annually into the West Fisher and then into the Fisher River. Funds for this work would need to be secured and are not guaranteed.

¹ As noted in the Changes from FEIS and DSEIS section the helicopter units have been found to be infeasible; therefore they are no longer considered as part of the action.

- Access changes are designed to address watershed impacts, increase big game security through reduction in open road density (ORD) (note these changes are outside the grizzly bear recovery zone), and to create grizzly bear core habitat in bear management unit (BMU) 6 (note that these changes are within the grizzly bear recovery zone). Changes occur within and outside the recovery zone. Two roads would go from yearlong open to yearlong restricted to motorized vehicles including over the snow vehicles. These are Rd. 4724A (South Fork Miller Ck. A spur, 0.62 miles) which accesses Plum Creek Timber Company lands and would be closed to reduce ORD and eliminate road damage from yearlong access; and Rd. 6754C (Owl Peak C spur, 1.30 miles), which would be closed due to road damage from yearlong access and OHV trespass off the end of the road. Note that the decision modifies the closure of Rd. 6754C as described below. The decision also adds four roads, that are currently impassable, to the closure order as analyzed in Alternative 6 in the DEIS and FEIS. These roads are Rds. 99803, 99803A, and 99813 in the King Mine area, and Rd. 5201 in the West Fisher. These inaccessible roads total 4.56 miles. The decision clarifies that Trail 293A, Himes/Waloven Tie, is closed to motorized vehicles. This trail is a tributary of Trail 293, Himes/Waloven, which is listed in the closure order for motorized vehicles. Trail 293A, which is 1.2 miles long, was constructed as an alternate entrance on to Trail 293. This trail was constructed and designed for non-motorized use, is built within the riparian zone of both Silver Butte Fisher River and Waloven Creek, and has several stream crossings not designed for motorized vehicles.
- Rd. 808E in Schreiber Creek, which is currently restricted yearlong to motor vehicles including snow vehicles, would be bermed 1.65 miles from the end of the road in order to increase grizzly bear core habitat in BMU 6. This action would be completed at the same time as the storage and berm installation on Rd. 4725, North Fork Miller. Should the North Miller Creek power line route be selected in the Montanore Mine project, the berm on Rd. 808E would not be completed and Rd. 4725 would not be bermed.
- The decision includes improvement of trails and trailheads, including 5.9 miles of trail tread improvements for safety including limited blasting (one day) in wilderness on Divide Cutoff Trail #63, and repair of boggy areas on Bear Lakes Trail #178. Trailhead improvements include a larger turn around area for trailers and RVs at 15 trailheads in the project area. Acreage impacted would not exceed one acre at each trailhead.
- Fuels reduction and hazard tree removal would be completed in the Lake Creek Campground. Construction of stock corrals outside the campground would be completed to facilitate stock use and camping near project area trails.
- Spring development in the North Fork of Miller Creek would be completed to provide seasonal water for big game along a relatively dry ridgeline and side-hill park complex. Hand tools and/or explosives would be used to increase the size of an existing spring. The area is outside of wilderness.
- Culvert replacement at the 0.5 milepost on Rd. 2314 to remove a barrier to fish and aquatic species is included. Work would be completed during the low water period from July 15 to August 30. Funding for this work would need to be secured and is not guaranteed. The district has been successful funding these types of projects through partnerships and grants.
- Design features and mitigation measures to maintain and protect resource values (see Appendix D).

Changes from FEIS to DSEIS

Helicopter Logging: The 2009 Record of Decision stated that helicopter-logging units may not be implemented due to lack of economic feasibility during low market prices and high fuel prices (2009 ROD p. 13). Due to the downturn in the market, all helicopter logging analyzed in the FEIS has been dropped from this alternative. Therefore this DSEIS does not discuss the potential effects of helicopter logging on the grizzly bear which addresses the concerns of the Court as stated in Count I of Case CV 09-160-M-DWM regarding effects of helicopter logging to grizzly bears. These and other changes to harvest units and logging systems are described in Table 2 below.

*Count 1:
Provide further
explanation for
why helicopter
logging would
not cause harm
to grizzly bear*

Table 2: Harvest Unit Changes between Final EIS and DSEIS

UNIT	CHANGE
11	Change from skyline to tractor
21	Change from tractor/skyline/helicopter to just tractor/skyline. Drop helicopter portion of unit.
32	Dropped. Can't build skyline temp road in Core habitat. Snow road not feasible.
43, 44, 45	Drop - helicopter units
46	Drop – helicopter/skyline. Not feasible w/o helicopter
47	Change from tractor/helicopter to just tractor. Drop helicopter portion.
56	Drop. Had helicopter/skyline/tractor winter logging. Winter tractor portion not feasible.
57	Drop – helicopter unit
61	Was skyline, now is skyline/tractor with tractor portion above road
101	Drop helicopter portion of unit
107, 108, 110	Drop – helicopter
113	Drop helicopter portion of unit
115	Drop – helicopter
118A	Change from tractor/skyline to tractor
120	Change from skyline/tractor to tractor

Cumulative Actions: Over the time it has taken to complete analysis, implementation, litigation, and re-analysis for the Miller West Fisher project, some cumulative effects activities have changed. The Green Mountain timber sale has been completed. The Plum Creek timber harvest in T26N, R29W, Section 7 near Barron Peak has been completed. Most of the timber harvest in the Trail Creek area (T26N, R30W, Sections 9, 17, and 21) has been completed though some logging activity is expected to continue. All these actions are now included in the past activities portion of the cumulative effects analysis except for the Trail Creek logging that is not yet complete.

Access Amendment: In November 2011 the Record of Decision for the *Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones* (Access Amendment) was signed. The Access Amendment amended the Idaho Panhandle, Kootenai and Lolo National Forest land management plans (forest plans) to include standards for open motorized route density (OMRD), total motorized route density (TMRD), and Core area within the Selkirk and Cabinet-Yaak grizzly bear recovery zones (Access Amendment 2011 ROD, p. 5). These habitat security standards were determined through consultation with the U.S. Fish and Wildlife Service (USFWS), recommendations by the Interagency Grizzly Bear Committee (IGBC), and the research performed by grizzly bear research scientists Wayne Wakkinen (Idaho Department of Fish and Game (IDFG)) and Wayne Kasworm (USFWS)².

² The recommendations were based on an average of conditions used by reproducing female grizzly bears in the Cabinet-Yaak and Selkirk recovery zones. Five of six bears utilized habitat with Core area values of less than or equal to 55. Three of six bears used habitat with TMRD values greater than or equal to 26 percent. Four of six bears used habitat with OMRD values of greater

Habitat security standards were set depending on the site-specific capability of each Bear Management Unit (BMU) (Access Amendment 2011 ROD, p. 9). These standards reflect the unique biological factors (e.g., high quality habitat, sightings of family groups, human caused mortality, adjacency to BMUs having females with young, and ties to linkage areas), as well as other non-biological factors (highways, access to inholdings, access to popular recreation areas) in specific BMUs.

The access standards for individual BMUs were developed to provide areas of relatively freely available habitat (i.e. secure or Core habitat) for grizzly bears, along with moderately roaded habitat elsewhere. The goal was to provide a mix of motorized and non-motorized use area at levels that ensure the food and shelter resource needs of grizzly bears, including females with cubs, were met, while allowing other authorized uses of national forest system lands.

In addition, the 2011 Access Amendment also sets linear miles of open and total road standards for areas outside the recovery zones that are experiencing recurring use by grizzly bears (i.e. BORZ) (Access Amendment 2011 ROD, p. 5).

*Count 3:
Disclosure of
Limitations of
Wakkinen and
Kasworm
(1997) Study
(Also see
Appendix C)*

The Wakkinen and Kasworm study (1997) applied research techniques from Mace and Manley (1993) and Mace and Waller (1997) to local bear populations in the Selkirk and Cabinet-Yaak Ecosystems (SCYE). The Wakkinen Study was peer reviewed by nine biologists, whose comments were incorporated in the final report. Wayne Kasworm, grizzly bear researcher with the USFWS, and Wayne Wakkinen, grizzly bear researcher with the Idaho Department of Fish and Game, each have over thirty years of experience monitoring grizzly bear populations in the SCYE.

During the development of the Access Amendment, Allen et al. (2011) completed “A Review of the Wakkinen and Kasworm (1997) Report as Best Available Science for the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones.” Allen et al. (2011) addresses the limitations by reviewing and comparing Wakkinen and Kasworm (1997) to similar studies occurring in nearby South Fork Flathead River of Montana: Mace and Manley (1993), Mace et al. (1996), and Mace and Waller (1997 and 1998), and the Flathead National Forest Amendment 19 to the Forest Plan (USDA Forest Service 1995). Comparing studies can be complicated due to differences in habitat features, resource availability, grizzly bear individuality, existing human pressures, research methods, and software utilized. Allen et al. (2011) concluded their comprehensive review with the determination that Wakkinen and Kasworm (1997) provides the best data available for determining recommendations for the management of grizzly bear habitat in relationship to motorized routes for the Selkirk and Cabinet-Yaak Ecosystems. More recently, research within the adjacent Purcell Mountain Ecosystem of southeastern British Columbia, Canada, has found results similar to Wakkinen and Kasworm (1997). Proctor et al. (2008) examined data for five bears in the south Purcell Mountains, extending into northwestern Montana and sharing trans-border bears with the CYE. Proctor et al. (2008) did not examine the female grizzly’s selection of home range to the whole ecosystem, but did compare it to what was available within their respective BMUs. All three successful females selected their individual home ranges with higher Core than available in the BMU, averaging 51% (44, 54, and 55). Even at this higher order of selection, the percent Core is similar (average of 55%, ranging from 40, 53, 53, 54, 55, to 72) to Wakkinen and Kasworm (1997). Open road densities are also similar between the studies, 1.2 km/km² (0.46 mi/mi²) vs. ≤ 1 mi/mi² (Proctor et al. 2008 and Wakkinen and Kasworm 1997, respectively). In contrast, two unsuccessful females in this ecosystem selected home ranges of only 19% and 29% core (Proctor et al. 2008).

Wakkinen and Kasworm (1997) acknowledge that “while small sample sizes likely affected our ability to detect some differences that may have been present, it is important to note that use patterns were

consistent throughout the study.” Proctor et al. (2008) describe the trapping difficulty to get a larger sample size, especially for female bears. Given that they are attempting to study a small population, there is a “paradox that we’re trying to understand and predict use of habitat by females in an ecosystem where they are critically low” (Ibid). Ultimately, localized information strengthened by other research will give the best representation of what is used by the population in question.

The Court ruling on Miller West Fisher (AWR vs. Bradford, CV 09-160-M-DWM) determined that the Wakkinen and Kasworm (1997) research represents the Best Available Science regarding the effects of motorized access on grizzly bears in the SCYE. The ruling also found that the Miller West Fisher Project EIS failed to disclose the weaknesses of Wakkinen and Kasworm (1997) and that some information in the EIS “is incomplete or unavailable” and that the EIS did not discuss “the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment,” for example. The opinion found that without that discussion in the EIS the public cannot adequately evaluate the agency’s decision-making process.

The weaknesses of the Wakkinen and Kasworm (1997) study lie in: 1) the small sample size; 2) the mortality of bears involved in the study; 3) internal USFWS biologist criticism of the study results; 4) the inability of the study to determine whether bears selected habitat they preferred or the best available; and 5) simply that the results differ from similar but not comparable research from other nearby ecosystems. In spite of these weaknesses, peer review, USFWS review and the Montana District Court agree that Wakkinen and Kasworm (1997) is the best science regarding habitat requirements for grizzly bears in the SCYE. A detailed explanation of these limitations of the Wakkinen Study is provided in Appendix C of this document which satisfies Count III of CV 09-160-M-DWM, Discuss the limitations in the Wakkinen study (Wakkinen and Kasworm 1997).

Cabinet Face BORZ: The size and perimeter of the Cabinet Face BORZ has changed since the initiation of the Miller West Fisher project. The new BORZ polygon is based on direction from the 2011 Access Amendment (6th order watershed units where three or more credible observations within the last 15 years were recorded). The updated grizzly bear analysis uses the current Cabinet Face BORZ area. The current delineation of the Cabinet Face BORZ is 28,061 acres total, with 27,084 acres of National Forest System (NFS) lands as compared to what was considered in the Miller West Fisher FEIS, which was 96,000 acres total, with 53,760 acres of NFS lands. Effects analysis measures in the BORZ polygons have also changed from road density measured as miles per square mile to total linear miles of open road and total road.

Data Update: Grizzly bear model runs for the original DEIS, FEIS, and ROD were based on bear year 2006 data (Holifield 2009). This information is now inaccurate due to some changes in portions of BMU 7; specifically some open-to-motorized access trails now exist on the Cabinet District portion of BMU 7. Grizzly bear model runs now use bear year 2009 data as a baseline. Grizzly bear models are run using a GIS process that is based on the open, gated, and barriered road system for the BMUs in consideration. Bear year 2009 data is consistent with information used to analyze the Montanore project, which overlaps a portion of the Miller West Fisher project area.

Wolverine Proposed as Threatened under ESA: In February, 2013 the USFWS proposed listing the wolverine as threatened under the Endangered Species Act. In their published a proposed 4(d) rule, the USFWS listed several activities that were not considered significant threats to the species and would not result in incidental take and a violation of section 9 of the ESA (USDI 2013). There are no Forest Service management activities that threaten wolverines (direct effects) or high-elevation habitats (indirect effects). Activities that are not likely to disturb wolverines or habitat and therefore threaten the viability of the species include (Ibid pp. 7877-7880 and 7890):

- Dispersed recreation such as snowmobiling, skiing, backpacking, and hunting for other species;

- Management activities such as timber harvest, wildland firefighting, prescribed fire, and silviculture;
- Mining.

Wolverines have been documented to persist and reproduce in areas with high levels of human use and disturbance (USDI 2013 p. 7877). There appears to be no evidence that the activities listed above (e.g. snowmobiling, skiing, timber harvest, mining) translate to threats to subpopulations, populations, vital rates, geneflow, and population persistence (Ibid. p. 7877). USDI (2013) cited ongoing research into the impacts of high levels of recreational use on wolverines in central Idaho. That ongoing research has documented wolverines living in areas of high recreational use (i.e. disturbance) (USDI 2013 p. 7878, Heinemeyer 2012, Heinemeyer and Squires 2012).

The two factors identified by USDI (2013) as most likely to impact wolverine populations are the extent of persistent spring snow, and the impact of trapping mortalities.

The Miller West Fisher project is **not likely to jeopardize the continued persistence of the wolverine**. This conclusion is based on: 1.) the proposed activities of the Miller West Fisher project fit under the list of activities that USFWS determined are not likely to threaten the viability of the species (USDI 2013, p. 7890); and 2.) the Miller West Fisher project would not affect the extent of persistent spring snow, nor would it impact trapping mortalities.

Revised Critical Habitat Designation for Canada Lynx Proposed under ESA: In September, 2013 the USFWS proposed to revise the critical habitat designation for the Contiguous United States Distinct Population Segment (DPS) of the Canada lynx (USDI 2013a). The USFWS also proposes to revise the definition of the lynx DPS to ensure that all lynx in the contiguous United States are protected under the Endangered Species Act.

This proposed revision of critical habitat does not affect lands on the Kootenai National Forest, and therefore, critical habitat boundaries remain the same. Currently, the lynx DPS is based on State boundaries within the historic distribution of lynx; the revision of the definition of the lynx DPS would replace the current definition with a DPS definition that extends protections of the Act to lynx wherever they occur in the contiguous United States. This revised boundary would include lynx that occur in New Mexico as a result of lynx introduction in Colorado, but would not result in changes in the way the Act applies to lynx on the Kootenai National Forest.

Therefore, the finding for the Miller West Fisher project on Canada lynx remains **may affect, not likely to adversely affect**, and remains **no effect** on Canada lynx critical habitat.

Bull Trout Critical Habitat Revisited

The 2010 rule for bull trout Critical Habitat established more stream miles of habitat and new primary constituent elements (PCE's). These new miles were not specifically discussed in the previous BA (May 2009) or subsequent biological opinion (BO). The change the USFWS made was to remove the critical habitat designation from streams on private land and designate critical habitat on streams contained on public land. The switch reversed the juxtaposition of the project from directly upstream of critical habitat to inside critical habitat. Streams now considered with critical habitat which could be impacted from the proposed project include the entire West Fisher Creek and the Fisher River below the confluence (with West Fisher Creek) to the Kootenai River. The entire Kootenai River has also been listed as designated critical habitat.

The 2009 biological assessment for bull trout and its habitat, as part of the Miller West Fisher Project, was recently supplemented and provided to the U.S. Fish and Wildlife Service for concurrence. Concurrence with the supplement is pending.

Grizzly Bear Analysis

In 2011 the USFWS issued a Biological Opinion (BO) on the Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones on the Kootenai, Idaho Panhandle, and Lolo National Forests. This supplemental analysis demonstrates how the Miller West Fisher Project is in compliance with the 2011 BO. Prior to the issuance of the 2011 BO, grizzly bear management for the Selkirk and Cabinet-Yaak Ecosystem and Kootenai National Forest (KNF) continually evolved subsequent to the 1993 grizzly bear recovery plan. Chronology of grizzly bear management is provided in Appendix B of this document.

A current species list for KNF was updated on the U.S. Fish and Wildlife Service (USFWS) website (http://www.fws.gov/montanafieldoffice/Endangered_Species/Listed_Species/Forests/Kootenai_sp_list.pdf) on 06/06/2013. The USFWS concurred with potential listed species distribution maps and resulting consultation areas for the KNF in 2001 (USFWS: Wilson). Terrestrial wildlife species status in the area of the proposed project is shown below in Table 3.

Table 3: Threatened, Endangered and Proposed Species Known or Suspected to occur within the Influence Area of the Project

SPECIES	STATUS	OCCURRENCE
Grizzly Bear (<i>Ursus arctos horribilis</i>)	Threatened	Known
Canada Lynx* (<i>Lynx canadensis</i>)	Threatened; Critical Habitat	Suspected; No designated Critical Habitat in project area
Wolverine** (<i>Gulo gulo luscus</i>)	Proposed	Transient

*Analysis for Canada Lynx and Canada lynx Critical Habitat is located in FEIS Chapter 3.

**Analysis for Wolverine found in Changes from FEIS to DSEIS section above

Summary of Conclusions

Reaffirmation of the decision to implement the Miller West Fisher Project results in a determination of **may affect, but is not likely to adversely affect** grizzly bears.

Data Sources, Bounds of Analysis, and Analysis Framework

Data Sources

Grizzly bear population ecology, biology, habitat description and relationships identified by research are described in USFWS (1993), the annual progress reports for the Cabinet-Yaak grizzly bear research (Kasworm et al. 2000-2012) and Kasworm and Manley (1988). That information is incorporated by reference. Grizzly bear occurrence data comes from recent District wildlife observation records, Forest Service Natural Resource Information System wildlife database, and other agencies (USFWS, MFWP).

Bounds of Analysis

Geographic Scale

The District Court found the EIS did not include a discussion about the appropriate level of analysis for cumulative effects or why the Forest Service chose to analyze cumulative effects only by examining effects at the BMU level, rather than a larger scale. Based on the following discussion we have determined that evaluating direct, indirect, and cumulative effects in the two BMUs (Wanless, BMU 6 and Silverbutte, BMU 7) and Cabinet Face BORZ is the appropriate scale to analyze cumulative effects to grizzly bears.

The proposed project is in the Cabinet-Yaak grizzly bear recovery zone (USFWS 1993), and more specifically, in BMUs 6 and 7. The Cabinet-Yaak Ecosystem (CYE) is large and diverse, meaning that grizzly bear habitat and use in one part of the ecosystem may not be reflected throughout the whole ecosystem. Breaking down the ecosystem into smaller units, i.e. by Bear Management Unit (BMU),

*Count 4:
Cumulative
Effects
Analysis Area
Explained*

allows for analysis to consider effects associated with the activity's area of influence so that potential effects would not be diluted by considering too large an area (IGBC 1990). The BMUs are biologically meaningful to grizzly bears in that they 1) are based on the average size of a female bear's home range; 2) provide seasonal and elevational movement in response to needs (e.g. food and denning habitat); and 3) provide contiguous, unobstructed Core habitat allowing for displacement (Christensen and Madel 1982, IGBC 1990). Delineating BMU boundaries using topographical features establishes a recognizable unit for management consistency, allowing for identification of management needs or concerns, activity planning, scheduling, coordination, and monitoring within and among adjacent ranger districts.

Christensen and Madel (1982), in Cumulative Effects Analysis Process chose a 515,000 acre cumulative effects analysis area which represented 56 percent of the Cabinet-Yaak Recovery Zone and was the focal point of mineral exploration and development on the KNF. In this analysis, it was assumed that if each smaller bear unit within that analysis area is maintained in a viable condition then the total of all bear units would remain a viable habitat. Based on that well established premise, the BMU has been consistently identified as the analysis area for analyzing and monitoring effects to the grizzly bear (e.g. in IGBC 1994, McMaster 1995, and IGBC 1998).

The recovery zone for grizzly bears in the Cabinet-Yaak Ecosystem is approximately 2,600 square miles. However, the current distribution of resident grizzly bears includes areas outside of the Recovery Zones identified in the 2011 Access Amendment. An analysis of potential effects to grizzly bear outside the recovery zones on the KNF was completed in the Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones, or Access Amendment, FEIS (USDA FS 2011). That information is incorporated by reference. Current grizzly bear distribution outside of the Cabinet-Yaak Recovery Zone has been delineated into four individual polygons. The analysis boundary for project impacts to individuals and their habitat is the BMU in the recovery zone and the grizzly bear outside the recovery zone recurring use polygon (here after BORZ polygon) (USDA Forest Service 2011) outside the recovery zone. Therefore, in addition to the BMUs, direct, indirect, and cumulative effects are also evaluated for the BORZ.

The Miller West Fisher project analysis considered the following information to determine what areas should be included in the cumulative effects analysis:

- The analysis considered what BMUs would be affected by the project and the nature of effects within those BMUs. The Miller West Fisher activities would occur in the eastern portions of BMUs 6 (Wanless) and 7 (Silver Butte) and the southern portion of the Cabinet Face BORZ. Therefore, both BMUs 6 and 7 and the Cabinet Face BORZ were considered for cumulative effects analysis.
- Adequate and available areas of secure habitat (Core) for grizzly bears to displace to was also considered as part of the cumulative effects analysis. In other words, should the cumulative effects boundary be expanded beyond the two BMUs and Cabinet Face BORZ area? The project area contains large inventoried roadless areas and wilderness that constitute Core habitat. BMUs 6 and 7 contain four large blocks of Core (at least 10,000 acres) that are located within a few miles of all proposed activities in BMUs 6 and 7 and the Cabinet Face BORZ. Other, smaller blocks of Core are found within both BMUs and would provide additional secure habitat. Any bears potentially displaced during project activities would likely move to the large, unroaded areas that are currently providing secure habitat within BMUs 6 and 7. Human use patterns in these BMUs can be characterized as dispersed recreation over a network of roads and trails, timber harvesting, and mining activity. There has been a consistent but not overwhelming human presence. Implementing this proposal would not create a significant departure from past human use patterns or create an obvious source of conflict between people and bears resulting in an increased potential in bear mortalities. In addition, adjacent BMUs provide additional Core habitat (USFS 2011: Access Amendment ROD p. 11).
- Whether or not there would be effects to linkage areas was also considered; specifically linkage with BMUs 5 and 8 (to the north and south of project activities) and determined that Core areas

within BMUs 6 and 7 will continue to provide linkage between these BMUs and BMUs 5 and 8 (Access Amendment Final Supplemental EIS p. 76; Figure 6).

- A final consideration is that expanding the cumulative effects boundary would dilute the effects of this action.

Based on the above findings, the use of BMUs 6 and 7 and the Cabinet Face BORZ as the cumulative effects boundary for this specific action was determined to be appropriate. This satisfies Count IV of CV 09-160-M-DWM, explain the appropriateness of assessing cumulative effects at the Bear Management Unit level.

Temporal Scale

As required in 36 CFR 220.4(f) the cumulative effects analysis considers the present effects of past activities. These effects are reflected in the existing condition (baseline) and generally include the effects of past road building and vegetation management within the BMUs and the BORZ. In addition, the analysis considers the temporal effects of the activities, i.e., the length of time the effects of the action alternative would last. In general, temporal effects may be short-term (1 to 5 years) or long term (20 years or more). The temporal effects are used to determine what, if any, reasonably foreseeable activities overlap with the project activities, either in time or space (geographic area), and could result in cumulative effects.

Grizzly Bear Habitat Analysis Framework

The goal for grizzly bear management on the KNF is to provide sufficient quantity and quality of habitat to facilitate grizzly bear recovery. An integral part of the goal is to implement measures within the authority of the Forest Service to minimize human-caused grizzly bear mortalities. This goal is accomplished by achieving five objectives common to grizzly bear recovery as described by Harms (1990), and by a sixth objective specific to the Kootenai National Forest concerning acceptable incidental take (USFWS 2011) (see Table 4 below).

A number of measures are used to gauge whether the objectives are being met. The following analysis describes the potential effects of the selected action by examining how these measures are implemented and, thus, how the objectives relating to grizzly bear recovery are met. Effects analysis for the Miller West Fisher Project considers the recovery objectives, compliance with management direction, and best science. Table 4 describes the recovery objectives, the habitat parameters evaluated, and the basis for the habitat parameters.

Table 4: Recovery Objectives, Parameters, and Basis Guiding Grizzly Bear Habitat Analysis

OBJECTIVE*	PARAMETER	BASIS FOR PARAMETER
1) Provide adequate space to meet the spatial requirements of a recovered grizzly bear population.	Core areas Open motorized route density Total motorized route density	FP Standard III-59 and the 2011 Access Amendment as an Addendum to Appendix 8
2) Manage for an adequate distribution of bears across the ecosystem.	Opening size Movement corridor Seasonal components Road density and displacement (Core)	Recommendations from Grizzly Bear Guidelines meeting (Harms 1990) FP standard (III-59 and Appendix 8-10) FP standard (Appendix 8-10), and recommendations from USFWS and KNF meeting (Brooks 1992) See Objective 1
3) Manage for an acceptable level of mortality risk.	Opening size Movement corridors Road density Displacement Attractants	See Objective 2 See Objectives 1 and 6 FP standard (Appendix 8-9, 11, 12, 14, and 16)

OBJECTIVE*	PARAMETER	BASIS FOR PARAMETER
4) Maintain/improve habitat suitability with respect to bear food production	Objectives 1 and 2 How does project improve food sources (especially huckleberries)	
5) Meet the management direction outlined in the Interagency Grizzly Bear Guidelines (51 Federal Register 42863) for management situations 1, 2, and 3.	Achieved by meeting Objectives 1-4 (Buterbaugh 1991)	
6) Meet the management direction specified in the 2011 Addendum to Forest Plan Appendix 8 and the 2011 USFWS BO and Incidental Take Statement.	This objective is met by meeting Core, OMRD, and TMRD standards addressed in Objective 1 as well as complying with Access Amendment design elements	

*Objectives 1-5 were formulated to accomplish the KNF grizzly bear management goal to provide sufficient quantity and quality of habitat to facilitate grizzly bear recovery (Harms 1990).

As noted in Table 4, the Core area, OMRD, and TMRD parameters are based on direction in the Access Amendment which uses the research recommendations found in Wakkinen and Kasworm (1997) as the benchmark standards for BMUs. The Wakkinen and Kasworm (1997) recommendations are: 1) a minimum Core habitat of 55 percent, 2) a maximum of 33 percent of a BMU with greater than 1 mi/mi² OMRD, and 3) a maximum of 26 percent of BMU with greater than 2 mi/mi² of TMRD.

Affected Environment/Existing Condition

Introduction

Grizzly bears and their associated habitats are known to occur on the KNF as well as within the project area. There are two grizzly bear recovery zones on the KNF, the CYE and the Northern Continental Divide Ecosystem. The proposed project is in the CYE.

Habitat conditions in the CYE have been improving steadily since 1987 as documented by Johnson (2002), Summerfield et al. (2004), and the annual Kootenai Forest Plan monitoring reports on threatened and endangered species habitat (USFS 2012). On the KNF since 1987, wheeled motorized vehicle access on open roads has decreased (Ibid). In 1987, there were 6,200 miles of road (forest-wide inside and outside the grizzly bear recovery zone) of which 73 percent (4,530 miles) were open to wheeled motorized vehicle use during the bear year. In 2011, there were 7,862 miles of road (inside and outside the grizzly bear recovery zone) of which only 36 percent (2,821 miles) were open to wheeled motorized vehicle use during the bear year. This results in a decrease of 1,709 miles of roads open to wheeled motorized vehicle use. In addition, since 2002 the total miles of Forest Service road on the landscape have declined. In 2002, there were 7,954 miles of road and in 2011 the total was 7,862 miles, which results in a reduction of 92 miles (ibid). In the Cabinet-Yaak ecosystem, since Core area was first implemented in 1998, the average percent Core area in a BMU across the KNF portion of the recovery zone has increased (improved) from 52 to 58 percent (not weighted) (USFS 2011).

Grizzly bear observation and monitoring data indicate that casual observations and formal detections are prevalent in the Cabinet Mountains. As previously stated, the Miller West Fisher project area is in BMUs 6 and 7. The project area is located in the Silverfish Planning Subunit (PSU). This area is located west of Highway 2 and contains the southeast portion of the Cabinet Mountains Wilderness. A Planning Subunit is a landscape area used for analysis purposes and typically bounded by natural watershed boundaries. The Silverfish PSU is approximately 69,419 acres of which 60,519 acres are National Forest System lands, 640 acres are State lands, 6,196 acres are Plum Creek Timber Company lands, and 2,064 acres are in other private ownership. Important watersheds in the project area include Miller, West Fisher, and Silver Butte Creeks and their tributaries.

The USFWS sightings database reveals that the Silverfish PSU contains high concentrations of casual observations reported by the public. In addition to sightings, information from radio-collared grizzly bears shows that portions of the Silverfish PSU provide habitat for grizzly bear.

The minimum viable population level of 100 grizzly bears is the recovery goal for the CYE (USFWS 1993). The grizzly bear population for the CYE is currently estimated to have a minimum of 42 grizzly bears with a 64 percent probability of a downward population trend (Kasworm et al. 2012). It's important to note that the survival trend calculation does not include the eight female grizzly bears augmented into the Cabinet Mountains. If those bears were included then it appears that the Cabinet Mountains segment of this population has actually increased in size since the start of augmentation in 1990 (Kasworm et al. 2007). This increase is largely due to the reproductive output of a successful augmentation bear and her offspring, which have also reproduced (Access Amendment 2011 BO, p. A-37).

Causes of grizzly bear mortality have generally been due to factors beyond Forest Service control (e.g. management removal due to food attractant on private land, train collision, hunter mistaken identity or defense of life, and illegal kill by humans). Kasworm et al. (2012) suggests that an increase in natural mortalities beginning in 1999 could be attributed to poor food production during 1998 through 2004, when huckleberry production was about half of the 20-year average. There is an apparent increasing trend in mortalities occurring on private lands in the CYE; since 1999, of total human-caused grizzly bear deaths in the U.S., those occurring on private lands were 23 percent of trend mortality. Human-caused mortality on U.S. public lands was 14 percent of trend mortality, and human-caused mortality in British Columbia was 10 percent of trend mortality (USFWS 2011 Access Amendment BO, pg. A-18). Mortality on private lands in the U.S. has become the largest source of human-caused mortality in the CYE (Ibid, pg. A-26). This is noteworthy given that the CYE is about 90 percent public land, yet human-caused mortality on public lands is only about 14 percent of the trend mortality.

An integral part of grizzly bear management on the KNF is to implement measures within the authority of the Forest Service to minimize human-caused grizzly bear mortalities. To that end, the KNF recently enacted a Food Storage Order (USFS 2011) which includes the proper storage and transportation of food and other attractants on all Forest Service lands on the KNF. There has been an increase in bear resistant garbage and food storage containers in developed campgrounds and a pack in/pack out policy for all other campgrounds and dispersed recreation sites. The KNF has also installed signs along popular roads to inform people that they are in grizzly bear habitat and they include grizzly bear identification information. Within the Miller West Fisher project area, these signs have been installed on main arterial roads in the Miller and West Fisher drainages.

Inside the Recovery Zone

Table 5 shows BMU 6 and 7 existing habitat conditions as of 2009. The Miller West Fisher FEIS was completed May, 2009, and its grizzly bear analysis was based on 2006 data. This SDEIS for grizzly bear analysis uses 2009 data, which permits comparison of the Miller West Fisher project with the Montanore Mine project, which also currently uses 2009 baseline data. There is little or no difference in BMUs 6 and 7 when comparing 2009 and 2011 conditions. In 2012, there was no change in BMU 6, but OMRD increased in BMU 7 due to Bonneville Power Administration using road #2220 to work on a powerline; this is not expected to be a continuing occurrence. Also, in BMU 7 from 2011 to 2012, Core increased (improved) to 65 percent due to converting a motorized trail to non-motorized use. See KNF monitoring reports for bear year 2009, 2011 and 2012 located in the project file.

With completion of the 2011 Access Amendment to the Forest Plan, habitat effectiveness (HE) and linear open road density (ORD) are no longer used to determine effects to the grizzly bear. These parameters were included in the Kootenai Forest Plan, but have been superseded by measuring open motorized route density (OMRD), total motorized route density (TMRD) and Core area standards, which best available science indicates are the appropriate measures of habitat effectiveness for grizzly bears (USDA FS 2011, Access Amendment FEIS pg. 68). Note that ORD is still a measurement used relative to certain Forest

Plan management areas, including MA 12, big game summer range, which has an ORD standard of 0.75 miles per square mile.

Table 5: 2011 Access Amendment Standard and Existing Condition of Habitat Components in BMUs 6 & 7

BMU	HABITAT COMPONENT ACCESS AMENDMENT STANDARD	EXISTING CONDITION
6	Core (% of BMU); Standard $\geq 55\%$	54%
	TMRD (% BMU $\geq 2 \text{ mi/mi}^2$); Standard $\leq 32\%$	33%
	OMRD (% BMU $\geq 1 \text{ mi/mi}^2$); Standard $\leq 34\%$	29%
7	Core (% of BMU); Standard $\geq 63\%$	63%
	TMRD (% BMU $\geq 2 \text{ mi/mi}^2$); Standard $\leq 23\%$	23%
	OMRD (% BMU $\geq 1 \text{ mi/mi}^2$); Standard $\leq 26\%$	24%

In BMU 6, the existing OMRD of 29% is better than the standard of $\leq 34\%$. The existing TMRD of 33% does not meet the standard of $\leq 32\%$. The existing core at 54% does not meet the standard of $\geq 55\%$. The Access Amendment acknowledged that not all BMUs currently meet the standards established for Core, OMRD, and/or TMRD, and that it may take up to eight years (i.e. 2019) for all BMUs to be in compliance with standards. The KNF will move BMUs into compliance through the implementation of specific management projects like those for this project.

In BMU 7, the existing OMRD of 24% is better than the standard of $\leq 26\%$. The existing TMRD of 23% meets the standard of $\leq 23\%$. The existing core at 63% meets the standard of $\geq 63\%$.

Outside the Recovery Zone

Table 6 shows the 2011 Access Amendment standard and existing condition of habitat parameters in the Cabinet Face BORZ. Although on the ground baseline conditions have not changed, corrections to roads that were originally incorrectly classified have occurred in the monitoring reports (USFS 2012, 2013).

Table 6: 2011 Access Amendment Standard and Existing Condition of Linear Road Miles in Cabinet Face BORZ

PARAMETER	ACCESS AMENDMENT STANDARD	EXISTING CONDITION ON NFS LANDS
Open Linear Road Miles	129.5 miles	129.5 miles
Total Linear Road Miles	164.6 miles	164.6 miles

Environmental Consequences

Direct and Indirect Effects

Objective 1: Provide adequate space to meet the spatial requirements of a recovered grizzly bear population.

Inside Recovery Zone

Habitat parameters are based on prudently drivable roads found on the landscape and are used to evaluate the quality of grizzly bear habitat. Habitat parameters that directly measure road density include OMRD and TMRD, while Core measures the amount of secure habitat within the BMUs located at least 0.31 mile away from existing motorized roads and trails.

Grizzly Bear Habitat Analysis

Table 7 summarizes existing conditions, direct and indirect effects of the project to OMRD, TMRD, and Core, and post-project conditions of habitat parameters. Habitat parameter levels are compared to the Access Amendment standards. The existing conditions are based on past actions, primarily road construction and road decommissioning which are reflected in the existing roads on the landscape.

Table 7: Existing Condition and Direct and Indirect Project Effects to Habitat Parameters, and Post Project Habitat Parameter Conditions BMUs 6 & 7

BMU	HABITAT PARAMETER ACCESS AMENDMENT STANDARD	EXISTING CONDITION	PROJECT ACTIVITIES PHASE 1	PROJECT ACTIVITIES PHASE 2	POST ACTIVITIES
6	Core (% of BMU); Standard $\geq 55\%$	54%	54%	55%	56% *improvement
	TMRD (% BMU $\geq 2 \text{ mi/mi}^2$); Standard $\leq 32\%$	33%	34%	35%	32% *improvement
	OMRD (% BMU $\geq 1 \text{ mi/mi}^2$); Standard $\leq 34\%$	29%	31%	32%	29%
7	Core (% of BMU); Standard $\geq 63\%$	63%	62% *reduction allowed per design element I.B.2.a.	62%	63%
	TMRD (% BMU $\geq 2 \text{ mi/mi}^2$); Standard $\leq 23\%$	23%	23%	23%	23%
	OMRD (% BMU $\geq 1 \text{ mi/mi}^2$); Standard $\leq 26\%$	24%	24%	25%	24%

Per Access Amendment Design Element I.B.1.d., the size of existing and post-project Core blocks by BMU is displayed in Table 8 below.

Table 8: Existing and Post-Project Condition of Core Block Sizes

CORE BLOCK	BMU 6 EXISTING CONDITION (acres)	BMU 6 POST-PROJECT (acres)	BMU 7 EXISTING CONDITION (acres)	BMU 7 POST-PROJECT (acres)
Core Block 1	27,067	27,067	15,176	15,115
Core Block 2	1,636	2,833	13,474	13,474
Core Block 3	1,468	1,468	10,290	10,583
Core Block 4	1,354	1,354	458	458
Core Block 5	1,036	1,036	43	43
Core Block 6	959	959	41	41
Core Block 7	787	787	2	2
Core Block 8	65	75	1	1
Core Block 9	15	15		
Core Block 10	8	8		
Core Block 11	3	3		
Core Block 12	1	1		
Core Block 13	1	1		
Core Block 14	1	1		
Core Block 15	1			
Total Acres	34,402	35,608	39,485	39,717
Core as a Percentage of BMU	54%	56%	63%	63%

BMU 6

Core

During implementation of Phase 1 of the project, Core remains at the current 54%. Units in the North Fork of Miller Creek would be logged during Phase 1; this area is currently not in Core. Phase 1 also includes opening the stored road into Units 129 and 130 in West Fisher Creek, which impacts a Core block of 15 acres. However, before this Core block is opened to access Units 129 and 130, Core would be created to compensate by berming a portion of Road #808 in the Schreiber Creek drainage. This would

create a Core block of 34 acres that would be added to the current Core block in the northeast portion of BMU 6. This Core block would be placed into a condition such that a need for motorized access for maintenance is not anticipated for at least 10 years according to Design Elements I.B.1.e. and I.B.1.f. See map**

After all logging, site preparation, prescribed burning and planting occurs in Miller Creek, the parameters for establishing Core habitat (Design Elements I.B.1.e and I.B.1.f.) would be followed and roads #4725 and 1.65 miles of road #808E would be placed in a condition such that a need for motorized access is not anticipated for at least ten years. Enough Core habitat would be created to compensate for entering the Core block in the Teeters Peak Core area.

The Core block that is affected by harvesting Units 129 and 130 would be restored into Core condition after project activities are complete.

After the Miller Creek area is placed into Core status, the Teeters Peak Road #6743 would then be opened to harvest eight units (8A, 10, 101, 111, 112, 113, 114A, and 115) which are in Core habitat. The Core level at this point in time would be 55%. The earthen barrier located on the Teeters Peak Road would be replaced by a gate to remain closed during implementation and then replaced by earthen barrier after harvest activities are complete. These units include tractor, skyline, or a combination of these logging systems and all would be harvested during the non-bear season of December 1 through March 31. It is anticipated that logging would occur during one winter season, but could continue for two or more winter seasons. This activity is not expected to disturb grizzly bears during the hibernation season as no den sites are known in or expected to occur in the winter activity areas. Activity would occur on the Teeters Peak Road during the active bear year only to implement BMP work prior to this road system being returned to Core status (per Design Element I.B.1.f.). After project activities are complete, Core in BMU 6 increases to 56% as a result of the newly created Core in the North Fork Miller Creek area and returning the Teeters Peak area to Core; this would be an improved condition for grizzly bears.

Effects of temporarily decreasing Core near Units 129 and 130 and in the Teeter's peak area would be offset by creating Core in Schrieber Creek and in the Miller Creek area. There would be short-term disturbance and/or temporary displacement of grizzly bears that may be in the area of the activity and that are not accustomed to vehicle traffic in these areas. Grizzly bears would likely avoid the activity areas while activities are ongoing. There are four large Core blocks available in BMUs 6 and 7 that bears could use as displacement habitat, and the newly created Miller Creek Core area would be available as secure habitat (see Core Maps in Appendix).

OMRD

During Phase 1, OMRD increases to 31% due to opening road #4725 and associated spurs. During Phase 2, OMRD increases to 32% due to opening roads in the Teeters Peak area and other roads being used for timber harvest. Post project, OMRD returns to the pre-project condition of 29%. The standard for OMRD in BMU 6 is $\leq 34\%$, so this standard would be met during all Phases of the project.

TMRD

The existing condition of TMRD in BMU 6 (33%) does not meet the standard of $\leq 32\%$. During Phase 1, TMRD increases to 34% due to construction of temporary roads for timber harvest. During Phase 2, TMRD increases to 35% for the same reason. Post-project, road storage and decommissioning would cause TMRD to decrease to 32%, to meet Access Amendment standards and improve conditions for grizzly bear.

BMU 7

Core

During project implementation, Core drops from 63% to 62% due to watershed restoration and road storage work to be completed on bermed roads #99803, #99803A, and #99813 near the King Mine

property. This one-time entry into a Core area is allowed per the Access Amendment Design Element I.B.2.a. Post-project, Core habitat would return to 63% when these roads are replaced into Core condition.

OMRD

During project implementation, OMRD in BMU 7 increases to 25% due to storage of gated roads #99816 and #99816A and of bermed roads #99803, #99803A, and #99813. Post-project OMRD returns to 24%. The standard for OMRD in BMU 7 is $\leq 26\%$, so this standard would be met during all Phases of the project.

TMRD

TMRD in BMU 7 would not be affected by the Miller West Fisher project. Effects of increasing OMRD and TMRD would result in a short-term disturbance and/or temporary displacement of grizzly bears that may be in the area of the activity. Grizzly bears would likely avoid the activity areas while activities are ongoing. There are four large Core blocks available in BMUs 6 and 7 that bears could use as displacement habitat (see Core Maps in Appendix).

Outside Recovery Zone

The project would not result in permanent increases in linear miles of open road or total road above baseline conditions established for the Cabinet Face BORZ. A temporary increase in open road miles may occur during the project. During the bear year on NFS lands, 1.13 miles of NFS Road #4726 which is currently restricted (gated) year-round to motorized traffic would be used for access to harvest units. Per the Access Amendment Design Element II.A.1., this road would be potentially opened to the public after project activities if there is still time within the same active bear year but prior to the fall bear hunting season (i.e. June 16-August 31) for activities such as personal firewood collection. This road would return to its existing restricted status after implementation. See Table 9.

**Table 9: Existing Condition, During and Post Project Linear Road Mile Conditions
Cabinet Face BORZ**

PARAMETER	ACCESS AMENDMENT STANDARD	EXISTING CONDITION on NFS LANDS	PROJECT ACTIVITIES IMPLEMENTATION	POST-PROJECT ACTIVITIES
Open Linear Road Miles	129.5 miles	129.5 miles	139.6 miles	129.5 miles
Total Linear Road Miles	164.6 miles	164.6 miles	No change	164.6 miles

Objective 2: Manage for an adequate distribution of bears across the ecosystem.

A. Opening size: Proposed timber harvest units, either individually or in combination with existing unrecovered units should normally be designed to be less than or equal to 40 acres.

The existing condition includes past harvest units that are over 40 acres in size, or are greater than 40 acres when adjacent to other existing units. However, all of these units are currently providing hiding cover because the vegetation has had enough time to grow since being harvested. Therefore, they are no longer openings. The project would not create any new openings greater than 40 acres in size on NFS lands.

On private timbered lands, openings resulting from timber harvest range from approximately 40 acres to 311 acres in size. Large openings are generally avoided by bears.

Design criteria for the action alternatives include leaving riparian areas intact. The alternatives propose prescribed burn treatment areas that are larger than 40 acres and that occur on ridgelines but the actual openings would be a mosaic of burned and unburned vegetation. Harvest units would include patches of live and dead trees and shrubs and the effect would be a mosaic of harvested area, non-harvested areas, and groups of standing dead and live trees. These patches of trees and topography of the area would continue to provide some cover.

B. Movement corridors: Un-harvested corridors >600 feet in width would be maintained between proposed harvest units and between proposed and un-recovered existing harvest units. Maintenance of movement corridors has been a standard practice in Management Area 14 (grizzly bear habitat) since the implementation of the 1987 Forest Plan. Those harvests occurring 1992 and earlier (not subject to the 1987 FP) would now provide cover for movement within and between units as there has been enough time for the vegetation to grow.

Un-harvested corridors greater than 600 feet would be maintained between proposed activity and un-recovered existing harvest units according to project design.

On a larger scale, movement corridors of vegetative cover blocks and Core area are available across BMUs 6 and 7 and into the adjacent BMUs (5 and 8).

The Silverfish PSU does not include priority wildlife linkage habitat related to any highway, based on Ruediger et al. 2001: Figure 2, page 10. Servheen et al. (2001, updated 7/8/2003) identifies linkage zones based on landscape views from the Linkage Zone Prediction Model. A portion of the Silverfish PSU is located on the border of two Linkage Zones, the NCDE to Cabinet/Yaak and the Cabinet to Bitterroot Linkage Zones (Servheen et al. 2003: page 12, Figure 2). The lower elevation portion of the Silverfish PSU, largely located on private lands, has been identified as an approach area called the Highway 2 Barren Peak/Hunter Creek Wildlife Approach Area (Brundin and Johnson 2008).

The Silverfish PSU would be available for bear movement during and post project, although during activities bears may be displaced from areas within Miller West Fisher Timber Sale project area. Bears would likely displace to the large Core areas located in BMUs 6 and 7.

C. Seasonal components: In areas with important seasonal components such as spring range, the guideline is to schedule proposed timber harvest activities to avoid known spring habitats during the spring use period (April 1 to June 15) and known denning habitats during the winter (December 1 to March 31) (Johnson et al. 2008).

All of the proposed timber harvest units are located in spring range. No timber harvest would occur during the spring period, April 1st to June 15th.

Within BMU 6, the project has a total of 7 units (8A, 10, 32, 101, 111, 112, and 113) that occur in Core habitat. These units include tractor, skyline, or a combination of these logging systems and all would be harvested during the non-bear season of December 1 through March 31. All helicopter logging has been dropped from the project.

Winter harvesting of these units is not expected to disturb bears during hibernation. No bear dens are known to exist in the Silverfish PSU or in BMU 6. None are anticipated near the concerned timber units because den habitat in the recovery zone is generally above 5,000 feet in elevation. Of six known den sites of native grizzlies in the Cabinet Mountains portion of the recovery zone, four were above 6,200 feet in bear-grass side hill parks, one in a timbered shrub field, and one in a mixed shrub field-rock outcrop. The closest known grizzly den from the project area was found to the north in the Bear Creek drainage. The harvest of these units in the winter would allow more rapid snow melt and an earlier green-up of vegetation that would be available as forage for grizzly bears during the spring period. The project has no units that would occur during the active bear year in Core habitat, except for the fifteen acre Core block that would be affected by logging Units 129 and 130.

The project also has harvest units within the Cabinet Face BORZ and in BMU 6 that do not have a winter logging requirement, although as previously noted, no logging would occur during the spring bear period. Disturbance from timber harvest may displace grizzly bears from the area surrounding these units during the period of activity. Core habitat is available for bears to displace to (see Core Maps in Appendix). For all harvest units, the increased sunlight and reduced competition for moisture is expected to increase potential forage for bears. Hiding cover and vegetated movement corridors within 600 feet of harvested units would remain available in the stands adjacent to the harvested units.

Grizzly Bear Habitat Analysis

All of the proposed prescribed burns are located in bear spring range. The burns would occur in spring or fall, dependent on the fuel moisture content and weather forecast. Spring burning is scheduled to occur in the time period between snow-melt and green-up, or between the end of the berry season and before the fall snows begin, and thus would not interrupt any important biological periods such as breeding, denning, or spring or fall feeding. The ignition of these units would be by hand or helicopter. If the latter tool is used, helicopter activities would not last more than two days in a unit.

Approximately 2,830 acres of prescribed burns is proposed for the project area. The burn units are spread across the project area in both BMUs, and there are two burn units located in the Cabinet Face BORZ. Not all of the burn units would be ignited at once, to limit negative affects to wildlife. Burn units are to be implemented over a number of years to minimize impacts to wildlife (Miller West Fisher FEIS pg. 2-20). See Miller West Fisher ROD Table 3 which describes ignition acres, burn intensity, and timing restrictions designed to leave areas of forage for big game. Burn prescriptions vary from under-burning, to mixed severity, and one unit, B6, to be burned as a stand replacing fire. Forage production and creation of fuel breaks along ridge lines are the goals of the prescribed burns. Monitoring and possible fire management activities following the burn may last longer than two days but helicopter use would not be included.

Effects from prescribed fire activities include disturbance to bears from ignition activities such as noise from a helicopter or human presence, or disturbance from smoke or heat. The effects would not be expected to disturb grizzly bears for no more than a brief period (Grizzly Bear Helicopter Guide USFS, USFWS 2009), and effects to grizzly bears are not expected to be adverse due to this level of helicopter use. As described in the “Guide to Effects Analysis of Helicopter Use in Grizzly Bear Habitat” (USDA and USDI. 2009):

“When aircraft are used at low altitudes (<500 meters AGL), bears become aware of the aircraft, may flee to cover, or may move away from an area. Helicopter use involving a short duration (e.g., one day) and low frequency (e.g., several trips) may affect grizzly bears, but because the disturbance is relatively minor in intensity and does not persist for long periods (or through a season), the consequences should be insignificant. In other words, the potential or actual effect on a grizzly bear could not be meaningfully measured, detected, or evaluated. The effect(s) should not cause injury, decrease productivity, or significantly interfere with normal behavior patterns such as breeding, feeding, or sheltering. A “not likely to adversely affect” determination is reasonable for similar actions.”

The document “Guide to Effects Analysis of Helicopter Use in Grizzly Bear Habitat” (USDA and USDI. 2009) gives examples of the kinds of activities that are not likely to adversely affect grizzly bears. The list includes “limited prescribed burning with limited ground activity.”

Once human activities are finished, and the fire and smoke abates, it is expected that bears and other wildlife would return to these areas relatively quickly. Bears would be expected to utilize these areas rapidly after burning as grasses and forbs respond with a flush of young, palatable vegetation. Similar to some timber harvest, fire can promote huckleberry growth and production.

The expected result of prescribed burning is the initiation of early successional habitats. These would remain attractive to bears until canopy closure and successional processes change forage composition and condition in the absence of other disturbance, but may provide benefits for as long as 50 years on some sites.

Prescribed fire is also used to reduce slash concentrations after timber harvest. Most units would have excess material piled and burned (111 acres) or tops would be pulled to the landing and burned there. Piling is generally done in conjunction with harvest activities and burning occurs at a later time in either early spring or early fall. Some units will be harvested and the slash piled at a later date (at the contractor’s discretion). An excavator piles about two acres of slash/day, and the time spent in a unit for such work depends on the size of the unit and the amount of slash. For example, a 40 acre harvest unit would take approximately 20 days to complete.

Disturbance to bears would be similar or slightly less than that expected during harvest activities, due to fewer pieces of equipment and workers being present. The degree of disturbance associated with burning activities is much lower than harvest activities and would result in a lesser response from bears that may be using the area at that time. Intensity and duration of activities is low for burning, as most piles in a relatively large area can be ignited in a short amount of time; roughly a day for even several large units. Prescribed burning is not expected to affect grizzly bear denning. Burning would occur outside of the denning season and there are no bear dens known to exist in the Silverfish PSU or in BMU6 and none are anticipated.

D. Road density and displacement areas: Areas for bears to displace to are provided by Core habitat. Road density and Core habitat are discussed under Objectives 1 and 6.

Objective 3: Manage for an acceptable level of mortality risk.

Human-caused mortality is considered to be the major factor limiting grizzly bear recovery. Grizzly bear vulnerability to human-caused mortality is partially a function of habitat security. Therefore, mortality risk can be assessed to some extent by the use of habitat parameters that maintain or enhance habitat security. These include opening size and movement corridors (see Objective 2); and road density and displacement (Core) areas (see Objectives 1 and 6).

This objective also includes addressing the introduction of attractants that may occur with a proposed project to minimize the potential for grizzly-human conflicts. The action alternatives would not create any attractants such as garbage sources that increase the risk of conflict with humans. Logging operations are bound by contractual provisions to properly dispose of the waste products, including food attractants. The potential for a bear encounter would exist as a result of the project activities. Thus, there is the possibility of increased mortality to bears as a result of the project. Based on this potential, the project has been designed to minimize encounters between humans and bears. No restricted roads would be opened for timber harvest or associated activity during the hunting season (October 15 to December 1). The timber sale contractor would not be permitted to hunt on restricted roads opened for the timber harvest activities. In addition, within the BMUs, closed roads being accessed for logging would remain restricted to the public. Thus, the potential for undesirable encounters between humans and bears would be minimized, reducing the potential for increased grizzly mortality risk.

Taking into consideration the status of the habitat components listed above, mortality risk to the bear is generally low throughout most of BMU 6 and 7. It is important to note that human-caused grizzly bear mortality is also a function of other factors, such as the regulation of big game hunting, which is the responsibility of the State of Montana. Risk of mortality would not change appreciably due to implementing the selected alternative.

Objective 4: Maintain/improve habitat suitability with respect to bear food production.

Timber harvest and post-harvest treatments, including burning, and the proposed prescribed burning, when conducted within Forest Plan standards, would generally improve the growth of forage plants important to bears.

The project includes prescribed burning on Great Northern Mountain that is designed to improve huckleberry production for grizzly bears. The project also includes two timber harvest units, 129 and 130, that were designed with the intent to create openings and re-establish huckleberry for grizzly bear food. These units were planned specifically to benefit bears and improve bear habitat by increasing huckleberry production.

Any snow plowing along the main access road may change the timing of snow melt at the road edge and thus change the availability of spring green-up food sources.

Riparian habitats are generally considered to be valuable feeding sites. The project does not include any riparian harvest and would follow other Kootenai Forest riparian management guidelines, Montana

Streamside Management Act (HB 731), and INFS guidelines. Adherence to riparian area standards would ensure protection of the food resources in this important zone.

Objective 5: Meet the management direction outlined in the Interagency Grizzly Bear Guidelines (51 Federal Register 42863) for management situations 1, 2, and 3.

The District Court was unable to determine whether or not the agency complied with the forest plan requirement that projects in management situation 1 (MS-1) are compatible with the grizzly bear needs.

Pursuant to IGBC guidelines (IGBC 1986), the KNF designated management situations intended to distinguish areas where differing grizzly bear and human use conditions occur and define appropriate management strategies for each.

Management Situation 1 (MS-1) habitat contains grizzly population centers and habitat needed for the survival and recovery of the species. For grizzly bear MS-1 lands the Forest Plan directs that decisions will favor the needs of the grizzly bear when grizzly habitat and other land use values compete. Land uses which can affect grizzlies and/or their habitat will be made compatible with grizzly needs or such uses will be disallowed or eliminated.

*Count 5:
Demonstrate
compliance
with the
Forest Plan,
showing the
project is
compatible
with grizzly
bear needs*

Management Situation 3 (MS-3) lands are areas where grizzly presence is possible but infrequent due to high human use. Human presence results in conditions which may make grizzly presence untenable for humans and/or grizzlies. On MS-3 designated lands, the management focus is on human-bear conflict minimization, rather than habitat maintenance and protection, and grizzly bear presence will be actively discouraged.

The majority of the project area is in MS-1. The exception is the lands adjacent to private land (MS-3), and the Cabinet Face BORZ. The BORZ lands do not overlap with any of the management situation areas; therefore the management situation guidelines do not apply to them. However, the additional management direction provided by the 2011 Access Amendment for BORZ will provide additional protections for the grizzly bear.

Complying with the direction in MS-1 does not equate to prohibiting all activities. Providing grizzly bears an adequate quantity and quality of secure habitat at the home range scale ensures compliance with the Forest Plan with respect to MS-1 because grizzly bears can sustain disturbance within their home range without injury or death as long as adequate secure habitat is present (Access Amendment 2011 BO, p. A-77). The Access Amendment considers the quality and quantity of each BMU (home range) and established standards for secure habitat based on these factors. The habitat parameters are based on the best available research, consideration of the potential cumulative effects of these standards, and were developed in consultation with the USFWS (Access Amendment 2011 ROD, p. 31). The Access Amendment ROD addresses how the amendment is consistent with Management Situations 1 through 3 (Access Amendment 2011 ROD, p 30-31).

Further, the Kootenai Forest Plan established guidelines and standards for its programs to provide for a more consistent interpretation and implementation of the Interagency Grizzly Bear Guidelines on the Kootenai. These guidelines provide broad direction that should be strived for in all management activities but may be altered on the basis of site specific needs as determined in the biological evaluation (Forest Plan, Appendix 8-7).

Within the recovery zone, meeting Objectives 1-4 has been determined to meet the intent of the Interagency Grizzly Bear Guidelines (IGBC 1986, Buterbaugh 1991) and the Kootenai Forest Plan direction found in Appendix 8 as amended by the 2011 Access Amendment. The 2011 Addendum to

Forest Plan Appendix 8 specifies parameters for motorized access by BMU, to be measured using OMRD, TMRD, and Core. This Addendum to Forest Plan Appendix 8 replaces the Forest Plan standard for linear open road density and habitat effectiveness, which are no longer modeled.

Please refer to Table 10 for additional explanation regarding how the Miller West Fisher project is compatible with Kootenai Forest Plan direction for MS-1 and providing for grizzly bear needs.

Table 10: Forest Plan Grizzly Bear Requirements for Timber/Fire Management Projects

GRIZZLY BEAR STANDARDS	GRIZZLY BEAR ANALYSIS REFERENCE
Evaluate cumulative effects - FP App 8-9 <i>All proposed timber and fire management activities will be evaluated for their effects on grizzly bears and their habitat. A cumulative effects perspective will be used in the evaluation.</i>	See Bounds of Analysis section discussion on analysis area, and see Direct and Indirect Effects and Cumulative Effects sections. A biological assessment and consultation with the USFWS are completed.
Timing Constraints – FP App 8-10 <i>Timing constraints, scheduling, shortened contract periods, Maintenance of movement corridors, Provision of displacement areas, and Access management will be considered and implemented as needed.</i>	See Objective 2C – Seasonal Components; See Objective 2B Movement Corridors; See Objective Core Areas; Access Management is implemented through adherence to the 2011 Access Amendment Direction
Browse Enhancement; Prescribed burning – FP App 8-11 <i>Provision for the improvement of bear foods will be incorporated in project design consistent with other considerations.</i>	See Objective 4, Bear food production
OMRD, TMRD and Core ³ – FP Addendum to Appendix 8 <i>Activities in grizzly bear habitat and BORZ shall follow the management direction in the addendum to Appendix 8.</i>	See Objective 1
Attractants – FP App 8-12 <i>...there will be strict regulation of garbage, pets, and human waste to minimize grizzly/human conflict.</i>	See Objective 3 The KNF instituted a Food Storage and Sanitation Order (USFS 2011)
Maintain balance of open and closed roads – FP II-1 #3 <i>...(to) ensure grizzly bear security to meet recovery goals ...</i>	See Objective 1
Maintain or enhance habitat for T&E species – FP II-1 #5 <i>Including grizzly bear</i>	See Objectives 1-4 This project would result in a post-project habitat improvement by moving BMU 6 into compliance with the 2011 Access Amendment Standards and would maintain habitat in BMU 7 and the Cabinet Face BORZ
Maintain diverse age classes of vegetation -- FP II-1 #7 <i>For viable populations of all existing native, vertebrate, wildlife species</i>	See Objective 2 A, B, C
Identify and protect important habitat for T&E species – FP II-22-23 <i>Including grizzly bear</i>	See Objective 2 and 4

In addition, the following summarizes the design features incorporated into the project based on the above grizzly bear standards.

Timing constraints and protection of important habitat

- No timber harvest or associated activity would be permitted on roads restricted to motorized vehicles during general rifle hunting season, generally from October 15 to December 1.
- No hunting by the timber sale contractor would be permitted behind any gated road accessed for the timber harvest.

³ The Access Amendment replaced the Forest Plan linear open road density standard and habitat effectiveness standard.

- Restricted roads being opened within BMU 6 would remain restricted to the public in general, including Teeters Peak Road 6743, and spurs 5198, 5007, 5007a, unnamed spurs and temporary roads.
- Design features a, b, and c will help reduce any potential increase in human-caused mortality risk associated with opening the restricted roads and associated project activity.
- No timber harvest activity will occur during the spring period of April 1 to June 15. Any prescribed burning would take place before green-up and helicopter activity would be limited to 2 days.
- Units 8A, 10, 46, 111, 112, 113, 114A, in Core would be winter logged during the non-bear year, December 1 through March 31. Harvest during the non-bear year would avoid displacement of bears.
- Design features for the project include the use of separate timber sales and creating of Core so that the amount of Core remains intact in BMU 6. Before the Core block between Units 129 and 130 is affected, Core would be created in Schreiber Creek by berming a portion of Road #808. Activities in the North Fork of Miller Creek would occur, and Roads 4725 and 808E would be stored and Core created before activity on the units accessed from Road 6747 (Teeters Peak subdivision) would be implemented. This is necessary to maintain existing levels of Core habitat in BMU 6. The first timber sale sold from the Miller West Fisher project does not include the harvest units in the Teeters Peak subdivision, which would not be sold until the first timber sale is completed.

Browse enhancement and maintain and enhance habitat

- The prescribed burn units are designed to improve forage for grizzly bears
- Units 8A, 10, 101, 111, 112, 113 would improve forage within Core habitat
- Units 129 and 130 are specifically designed to improve huckleberry production.

Attractants

- All garbage at the logging sites will be removed in a timely manner to avoid potential wildlife conflicts.

The design criteria described above were developed to minimize the effects of this project to grizzly bears. The design criteria either eliminate the potential for adverse effects to grizzly bears or reduce those effects to short duration disturbance. As designed, this management action is clearly compatible with the grizzly bear as required in MS-1 lands under the 1987 Forest Plan and addresses Count V of Case CV 09-160-M-DWM.

Objective 6: Meet the management direction specified in the October 18, 2011 Incidental Take Statement (USFWS 2011).

This objective is met by meeting Core, OMRD, and TMRD standards addressed in Objective 1 as well as adhering to Access Amendment design elements for the recovery zone and the BORZ. According to the USFWS Biological Opinion on the 2011 Access Amendment, by the end of 2019, all BMUs shall meet the Access Amendment standards, or the amount of take anticipated and analyzed would be exceeded (USFWS 2011 BO pg. A-83). In the BORZ, the USFWS uses the measure of existing (baseline condition 2010) linear miles of road in each BORZ polygon. Permanent increases in linear miles of road would result in exceeded levels of incidental take (Ibid, pg. A-84).

Currently, BMU 7 meets the Access Amendment standards, and these would be maintained by the Miller West Fisher project. The Miller West Fisher project was designed to improve standards in BMU 6 to meet Access Amendment standards. The project actions in the Cabinet Face BORZ would not permanently increase linear miles of road. For these reasons, the Miller West Fisher complies with the October 18, 2011 Incidental Take Statement which satisfies Count II of Case CV 09-160-M-DWM.

Count 2: An incidental take statement from USFWS is required for projects located in areas outside the grizzly bear recovery zone

Grizzly Bear Response to Human Activities

Grizzly bear response to human activities including logging and prescribed burning is mixed and complex, and individual bears may respond in different ways. These responses are affected by such factors as the bear's sex and age, previous experience and exposure to human activities, topographical relief and features, and differences in habitat quality and diversity. There is potential that the nature and intensity of timber harvest activities resulting from the Miller West Fisher project would disturb or displace some bears from the immediate vicinity of harvest units.

Grizzly bears are capable of at least partially habituating to human activities (McLellan 1990) provided the activities are frequent enough and innocuous. It is reasonable to assume that bears would reduce their response to these activities over time. Females who may be displaced from an area during project implementation at a given location should be able to use these areas before and after work occurs, thereby passing along knowledge of these areas to their offspring. A bear subjected to disturbance can choose to remain or move away, but both choices have costs. By staying, stress may increase metabolic expenditures and it may be subject to increases risk of mortality in a conflict situation with humans. By moving, it expends energy in travelling to an alternate habitat that may not be as productive and it may be subject to competition or predation by other grizzlies. The CYE is not considered to be a "high density" population, so the risk of intraspecific encounters is considered to be low. The primary impact of displacement is considered to be the energetic cost of moving to find alternate food sources. This effect may be tempered over time if bears can adapt to an activity's level of disturbance.

Given that ample Core habitat is available, it is expected that bears would have opportunities to find alternate habitats with negligible impacts during activities.

Grizzly Bear Response to Roads

Grizzly bear use of areas near open roads has been documented to occur less than expected based on availability (Mace et al. 1996, Kasworm and Manley 1990), and more heavily used roads are avoided at a higher rate than lightly used roads (Mace and Waller 1997). Although most roads used in this project already receive some level of motorized use (i.e. open or restricted seasonally) or are in close proximity to such roads, the opening and use of roads would likely result in short-term avoidance of areas proximal to these roads for the duration of activities and for some time after cessation of work as effects of the action are relaxed.

Effects of Timber Harvest and Associated Activities

Timber harvest activities in individual units create a point disturbance as a result of the use of logging equipment, including chainsaws, skidders, loaders, cable yarders, or other machinery. Harvest activities typically occur during daylight hours and are concentrated in harvest unit boundaries.

Timber harvest, pre-commercial thins, non-commercial fuels reduction, and other activities that affect the arrangement and abundance of vegetation can affect the quality and quantity of food and cover. Human use patterns may also change as removal of vegetation can make grizzly bear habitat more accessible to humans. Regeneration harvest is expected to increase the amount of early seral habitat in the action area and would provide increased representation of shrub, forb, and grass species that favor more open conditions. Availability of these types of plants is expected to decline over time as successional changes alter the species composition of the site. Huckleberries, where present, may respond to increased sunlight and produce more reliable crops than in a full-shade situation. Intermediate harvest methods, such as commercial thinning, can also increase production of huckleberries on some sites.

Effects of Road Work and Road Use

Most timber hauling would occur on roads already used by public motorized vehicles. This means that most hauling would occur in areas already typically avoided by bears, or used by bears with some degree of tolerance for human activities. Road BMP work would be used to reconstruct to prepare haul routes and would occur on existing road prisms during the summer or fall bear seasons. Therefore, even though many timber harvest units are required to be winter logged, road activities associated with these units

would occur during the active bear year. The effect of road use to grizzly bears would be temporary disturbance from noise and human activities which could result in avoidance of such areas until all activities are complete. Minimal impact is expected, however, given the existing human activity on these roads, Core is available to displaced grizzly bears, and no new roads would be permanently placed on the landscape that would affect the long-term security of the grizzly bear in the project area.

Effects of Other Project Activities

Other activities included in the project include non-motorized trail reconstruction, trailhead improvement, fuel reduction and hazard tree removal in Lake Creek Campground, pool creation and stream bank stabilization in project area watersheds, and spring developments in the North Fork of Miller Creek. Grizzly bear response to these activities would be similar avoidance of activity areas as described for bear response to road use, logging, prescribed burning, etc.

These activities will not contribute a measurable effect to grizzly bears because they do not change any of the habitat parameters analyzed for habitat within or outside the recovery zone, Core habitat is available as displacement habitat, they fall within the influence zone of existing roads where bears may already be habituated to or actively avoiding disturbance, or they do not require the use of motorized vehicles.

Cumulative Effects

Introduction

The Affected Environment/Existing Condition section describes relevant past and present factors affecting the existing habitat conditions in BMUs 6 and 7 and in the Cabinet Face BORZ. This cumulative effects section considers the aggregate effects of past activities with ongoing and reasonably foreseeable contributions potentially impacting grizzly bear habitat and mortality.

As described under the section “Data Sources, Bounds of Analysis, Analysis Framework” the affected BMUs and BORZ area were chosen as the appropriate scale for grizzly bear cumulative effects analysis. For grizzly bears, the primary measure of habitat availability and quality is related to amount and arrangement of roads on the landscape. The effects from past road construction and subsequent access management (e.g. decommissioning, storage, and gating of roads) were displayed in the section “Affected Environment/Existing Condition” as they relate to grizzly bears.

Past timber harvest has occurred in the project area since the early 1900s and has provided a variety of age classes and successional stages across the project area. In some cases, past harvests provided habitat conditions favorable for huckleberry production and other forage for grizzly bears. Harvest units over 15 years old now contribute to hiding cover. In unharvested areas, natural disturbances including wildfire, insect and disease have contributed to this mosaic of habitats and forage conditions.

Activities affecting grizzly bear habitat have changed in recent years. Open road densities have dramatically decreased as a result of restricting and reclaiming roads through decisions intended to facilitate grizzly bear recovery. Since the mid-1990s there has been more intermediate harvest which provides both greater foraging opportunities and hiding cover in the same area. In contrast, fire suppression since the early 1900s has altered stand structure resulting in more homogeneous stands with greater canopy closure in some areas, which has in turn reduced huckleberry and other forage production at some sites.

Objective 1: Provide adequate space to meet the spatial requirements of a recovered grizzly bear population.

The reasonably foreseeable activities that would affect habitat parameters and overlap in time or space with proposed project activities in BMU 6 are: the Montanore Project’s South Fork Miller power line route (Alternative D-R), the Rock Creek Mine, and the Way Up/Fourth of July Mine. The cumulative effects of these projects on habitat parameters are displayed in Table 11.

Table 11: Summary of Cumulative Effects to Habitat Parameters in BMUs 6 and 7

BMU	HABITAT COMPONENT	ACCESS AMENDMENT STANDARD	ALT 6 POST	CUMULATIVE EFFECTS
6	% OMRD	≤ 34		26
	% TMRD	≤ 32		32
	% Core	≥ 55		55
7	% OMRD	≤ 26	24	24
	% TMRD	≤ 23	23	23
	% Core	≥ 63	63	63

BMU 6

Core

The Montanore Mine Project includes creation of additional core habitat in BMU 6 through berming the Standard Creek Rd. 6745. This work is included when considering cumulative effects of the Miller West Fisher and Montanore projects. Therefore the combined effect of the projects to Core habitat post project in BMU 6 results in 55% core and therefore would meet the standard for BMU 6 prescribed by the 2011 Access Amendment.

OMRD

Cumulatively, the Montanore Alternative D-R power line route would not change OMRD in BMU 6 (USDA 2009:872). However, open road changes analyzed in the Way Up/Fourth of July project would increase OMRD in BMU 6 during project to 36%⁴ when considered with the Miller West Fisher project. After project activities are completed, OMRD will be reduced to 26% which meets the Access Amendment standard of $\leq 34\%$.

TMRD

Cumulatively, when all reasonably foreseeable activities as described are considered, during implementation of the project, TMRD increases to a maximum of 35% during project activity. This increase is due to the combined effects of access changes (new road construction) in the Way Up/Fourth of July project, road decommissioning of the Standard Creek Road #6745 included in the Montanore project, and the effects of the Miller West Fisher project (temporary road construction) in the unlikely event they should all occur at the same time. The effects of increasing TMRD would be short-term disturbance and/or temporary displacement of grizzly bears that may be in the area during activities (see further discussion regarding grizzly bear response to roads below).

Post project, TMRD decreases (improves) to 32%. Therefore the project activities, when combined with other cumulative activities, results in a post project improvement in TMRD, and meets the Access Amendment standard of $\leq 32\%$. This is due to planned road decommissioning included in the project.

BMU 7

There are no reasonably foreseeable activities that would impact habitat parameters in BMU 7.

Objective 2: Manage for an adequate distribution of bears across the ecosystem.

As described in the Direct and Indirect Effects section above, the Miller West Fisher project would not negatively affect opening size, movement corridors, or wildlife linkage areas. The project design includes provisions to avoid impacting seasonal components for grizzly bears. Therefore, the Miller West Fisher project would maintain an adequate distribution of bears across the ecosystem and not add to adverse cumulative effects.

⁴ The increase to 36% assumes a worst case scenario that all activities are occurring at the same time. It is highly unlikely that this scenario would take place due to potential delays to the Montanore and Way Up/Fourth of July projects.

Objective 3: Manage for an acceptable level of mortality risk.

As described in the Direct and Indirect Effects section above, providing habitat security can partially mitigate for mortality risk to grizzly bears. The potential for encounters between grizzly bears and humans has been minimized through project design for Miller West Fisher.

Subdivisions on private land, once corporate timber land or patented mining claims, are being proposed at this time. Although considered as MS-3 lands, basically unsuitable for grizzly bear occupancy, these private lands can and may contribute slightly to the risk of grizzly bear mortality if landowners do not properly dispose of trash and manage pet and or livestock food sources. Any additional cumulative effects to grizzly bears, or other listed species, will be partially dependent on the duration (seasonal versus year-round) of use of these parcels and homes. Anticipated effects include species displacement, habitat alteration, and or habitat loss. Many of the activities that may occur on the private property parcels can only be estimated and are outside the control of the Forest Service.

Because the Miller West Fisher project is not expected to measurably add to increased mortality risk to the grizzly bear, it is not expected to result in adverse cumulative effects when considered with mortality risks from other activities.

Objective 4: Maintain/improve habitat suitability with respect to bear food production.

The Silverfish PSU, including BMUs 6 and 7 and the Cabinet Face BORZ, has had substantial timber management activities in the last 40 years (see Miller West Fisher FEIS pages 3-1 to 3-11). In addition to the harvested areas, there are unharvested areas including roadless areas and areas that have had natural disturbances such as insect and disease infestations, fire, and blowdown. The result of both management and natural processes is a landscape that is a mosaic of various stages of age classes and successional stages across the project area. This provides foraging habitat and hiding cover for grizzly bears and big game.

The Miller West Fisher project is designed to improve bear foraging conditions through timber harvest and prescribed burning. There would be no adverse effects to lead to adverse cumulative effects to bear forage.

Objective 5: Meet the management direction outlined in the Interagency Grizzly Bear Guidelines (51 Federal Register 42863) for management situations 1, 2, and 3.

Meeting Objectives 1-4 has been determined to meet the intent of Objective 5. As discussed in the Direct and Indirect Effects section above, the Miller West Fisher project meets the management direction outlined in the IGBC guidelines for grizzly bear management situations. Therefore, this project would not contribute to adverse effects to grizzly bear habitat.

Objective 6: Meet the management direction specified in the October 18, 2011 Incidental Take Statement (USFWS 2011).

This objective is met by meeting Core, OMRD, and TMRD standards addressed in Objective 1 as well as adhering to 2011 Access Amendment design elements for the recovery zone and the BORZ. As described, the Miller West Fisher project adheres to the incidental take statement and to the 2011 Access Amendment design elements. Therefore, this project would not contribute to adverse cumulative effects to grizzly bear.

Cumulative Effects of Other Activities

Reasonably foreseeable activities that will occur in BMUs 6 and 7 and in the Cabinet Face BORZ include timber harvest on Plum Creek lands along road #2314 and other private properties. Effects to grizzly bears due to Plum Creek logging are expected to be similar to those as described for logging on NFS lands. Potential timber salvage in BMU 7 may occur along the Silverbutte road (open to motorized traffic year-long). Habitat parameters would not be changed by these logging activities, and therefore are not expected to lead to adverse cumulative effects when considered with the logging activities of the Miller West Fisher project.

Prescribed burning and slashing would continue under the Forest-wide Fuel Reduction and Wildlife Habitat Enhancement program. All administrative use of restricted roads would meet standards specified in the access amendment. No increase in OMRD or TMRD, and no Core would be affected within the recovery zone. No increase in the linear miles of open or total roads for the Cabinet Face BORZ would occur. These treatments would result in productive bunchgrass and shrub field habitat. Effects to grizzly bears from prescribed burning were described in Direct and Indirect effects. Cumulative adverse effects are not expected to result from the aggregate of all planned prescribed burning, because due to logistics, only a few burn units could be treated during any given burn window, and these would be conducted over the span of several years.

Any human activities that occur inside the recovery zone, or in bear recurring use areas have the potential to displace grizzly bears. Examples of activities that occur routinely include: basic road maintenance, pre-commercial thinning, mushroom picking, prescribed burning, timber hauling, wildlife habitat improvement projects and various recreational uses. These activities have occurred and will continue to occur within the project area. These activities would not contribute to a measurable effect to grizzly bears, and when considered with project activities of the Miller West Fisher project would not lead to adverse cumulative effects because they would not change the habitat parameters inside or outside the recovery zone, and Core habitat is available as displacement habitat.

Outside the recovery zone, within the BORZ other reasonably foreseeable actions include weed spraying on several roads. Implementation of additional road storage approved under South McSwede EA could be completed in the future and is dependent upon obtaining funding. The Stiltner Hard Rock Mining Company Plan of Operation (Houghton Creek drainage) is also still active. These proposed activities do not result in any new road construction on NFS lands within the Cabinet Face BORZ, and roads currently closed to the public will not be opened as a result of the management activities. No impact to linear miles of open and total roads is expected to occur.

The action alternatives, in combination with the baseline conditions and reasonably foreseeable projects, do not change the baseline conditions within the Cabinet Face BORZ. Effects from the project activities and reasonably foreseeable actions in the Cabinet Face BORZ considered cumulatively would remain in compliance for the 2011 Access Amendment standards.

Regulatory Consistency

Endangered Species Act: The project is in compliance with ESA because 1) it meets all standards and recommendations established by USFWS through the IGBC, 2) adheres to the 2011 Access Amendment's features and design elements, and 3) consultation with USFWS has occurred, and concurrence is pending.

Forest Plan Consistency: The project meets Forest Plan guidelines and standards as they apply to grizzly bear. See discussion above under Environmental Consequences, Direct and Indirect Effects, *Objective 5* above.

National Forest Management Act: The project would comply with NFMA direction to provide for diverse populations of plant and animal communities by applying Forest Plan standards and guidelines.

Statement of Findings

Implementation of the Miller West Fisher Project **may affect, but is not likely to adversely affect** grizzly bears. This determination is based on:

- 1) Project activities would disturb a bear in the area and may cause temporary disturbance and avoidance of the affected areas; however,
- 2) Proposed activities would produce forage for grizzly bears and other wildlife;
- 3) Habitat parameter levels in BMU 7 would diminish only temporarily as allowed by the 2011 Access Amendment Design Element exception for hydrologic stabilization of roads in Core, and would return to meeting standards post-project;

- 4) In BMU 6 the habitat parameter levels Core and TMRD are currently not meeting standard, but would be improved to standard post-project to meet the standards set by the 2011 Access Amendment. During the project, Core, OMRD and TMRD would temporarily diminish for decommissioning road 6744. OMRD and TMRD would also diminish due to temporary road construction and opening roads for logging in North Fork Miller Creek and Teeters Peak areas;
- 5) Miles of permanent linear open and total roads in the Cabinet Face BORZ polygon are maintained;
- 6) There would be no timber harvest during the spring bear period to reduce stress on bear emergence from the denning period and feeding activities in spring habitat areas;
- 7) Winter harvest would occur on those units in the Teeters Peak Core area;
- 8) Areas affected by use of restricted roads would not be open to the public for motorized access;
- 9) There are four large (over 10,000 acre) Core blocks, many additional smaller Core blocks, and movement corridors available for potential bear displacement from project activity areas;
- 10) The project activities would not generate bear attractants; and
- 11) No increase in grizzly bear mortality is expected.

Literature Cited

- Brooks, C.F. 1992. Joint USFWS/KNF Grizzly Bear Management Meeting notes. 4pp.
- Brundin, L. and W. Johnson. 2008. Kootenai National Forest Wildlife Approach Areas. Unpublished report, USDA Forest Service, Kootenai NF, Libby, MT. 58pp.
- Buterbaugh, G.L. 1991. USFWS letter to Forest Service regarding KNF Keeler Timber Sale.
- Christensen, A.G. and M.J. Madel. 1982. Cumulative Effects Analysis Process and Grizzly Habitat Component Mapping. USDA Forest Service, Kootenai National Forest. 62 pp.
- Harms, D. 1990. Memorandum Regarding Grizzly Bear Guidelines Meeting. 14 pp.
- Heinemeyer, K. S. 2012. Central Idaho wolverine and winter recreation study: February 2012 update. Rocky Mountain Research Station, Missoula, Montana. 4pp.
- Heinemeyer, K. S, and J. Squires. 2012. Idaho wolverine-winter recreation research project: investigating the interactions between wolverines and winter recreation, 2011-2012 progress report. December 12, 2012. 26 pp.
- IGBC. 1986. Interagency Grizzly Bear Guidelines. 108 pp.
- IGBC. 1987. Interagency Grizzly Bear Committee Grizzly Bear Compendium. 163 pp.
- IGBC. 1990. Cumulative Effects Model-A Model for Assessing Effects on Grizzly Bears. 26 pp.
- IGBC. 1994. Interagency Grizzly Bear Committee Taskforce Report. 8 pp.
- IGBC. 1998. Interagency Grizzly Bear Committee Taskforce Report. 8 pp.
- Johnson, W. 2002. Historical Access Management in a Small Population of Grizzly Bear. Unpublished report, USDA Forest Service, Kootenai NF, Libby, MT. 2 p.
- Johnson, Wayne (editor); B. Lyndaker, D. Wroblewski, T. Layser, W. Kasworm, and W. Wakkinen. 2008. Motorized Vehicle Access Management Recommendations Based on the "Bear Year" Definitions for the Cabinet-Yaak & Selkirk Grizzly Bear Ecosystems. USDA Forest Service, unpublished report, Kootenai, Idaho Panhandle and Lolo NF. Libby, MT. 6 pp
- Kasworm, W.F. and T.L. Manley. 1988. Grizzly bear and black bear ecology in the Cabinet Mountains of Northwest Montana. Montana Department of Fish, Wildlife and Parks. 123 pp.
- Kasworm, W.F. and T.L. Manley. 1990. Road and Trail Influences on Grizzly Bears and Black Bears in Northwest Montana. *In: Bears: Their Biology and Management*, Vol. 8, A Selection of Papers from the Eighth International Conference on Bear Research and Management, Victoria, British Columbia, Canada. pp. 79-84.
- Kasworm, W.F. et. al. 2000-2009. Annual Cabinet-Yaak Grizzly Bear Research and Monitoring Progress Reports for years 1999-2008. U.S. Fish and Wildlife Service.
- Kasworm, W. F., H. Carriles, T. G. Radandt, M. Proctor, and C. Servheen. 2010. Cabinet-Yaak grizzly bear recovery area 2009 research and monitoring progress report. U.S. Fish and Wildlife Service. 78 p.
- Kasworm, W. F., H. Carriles, T. G. Radandt, M. Proctor, and C. Servheen. 2011. Cabinet-Yaak grizzly bear recovery area 2010 research and monitoring progress report. U. S. Fish and Wildlife Service. 86 p.

- Kasworm, W. F., H. Carriles, T. G. Radandt, J. E. Teisberg, M. Proctor, and C. Servheen. 2012. Cabinet-Yaak grizzly bear recovery area 2011 research and monitoring progress report. U. S. Fish and Wildlife Service. 90 p.
- Mace, R.D., J.S. Waller, T.L. Manley, L.J. Lyon, and H. Zuuring. 1996. Relationships among Grizzly Bears, Roads and Habitat in the Swan Mountains, Montana. *Journal of Applied Ecology*. Vol 33. pp. 1395-1404.
- Mace R.D. and J.S. Waller. 1997. Final Report: Grizzly Bear Ecology in the Swan Mountains. Montana Fish, Wildlife, and Parks. 1920 6th Ave. East. PO Box 200701, Helena, MT 59620-0701. 208 pp.
- McLellan B.N. 1990. Relationships between Human Industrial Activity and Grizzly Bears. *In: Bears: Their Biology and Management*, Vol. 8, A Selection of Papers from the Eighth International Conference on Bear Research and Management, Victoria, British Columbia, Canada. Pp. 57-64.
- McMaster, K.M. 1995. USFWS letter to KNF regarding a meeting summary regarding salvage sale projects on the KNF. 6 pp.
- Molloy, Honorable Judge Donald W. 2008. Court ruling on Alliance for the Wild Rockies vs. USDA Forest Service and U. S. Fish and Wildlife Service; CV 07-150-M-DWM. 30 p.
- Proctor, M., C. Servheen, W. Kasworm, T. Radandt. 2008. Habitat security for grizzly bears in the Yahk Grizzly Bear Population Unit of the south Purcell Mts. of southeast British Columbia; the Trans-border Grizzly Bear Project. 44 p.
- Servheen, C., J.S. Waller, and P. Sandstrom. 2001, updated 2003. Identification and Management of Linkage Zones for Wildlife Between the Large Blocks of Public Land in the Northern Rocky Mountains. USFWS. Missoula, MT. 83 pp.
- Summerfield, B., W. Johnson, D. Roberts. 2004. Trends in road development and access management in the Cabinet-Yaak and Selkirk grizzly bear recovery zones. *Ursus* 15(1) Workshop Supplement: 115-122(2004). 10 p.
- USDA Forest Service and USDI Fish and Wildlife Service, Montana/Northern Idaho Level 1 Terrestrial Biologists Team. 2009. Guide to Effects Analysis of Helicopter Use in Grizzly Bear Habitat. Unpublished report. 19 pp.
- USDA Forest Service. 2010-2013. Annual Cabinet-Yaak Grizzly Bear Recovery Zone Monitoring Reports for Bear Years 2009-2012. Kootenai National Forest, Libby, MT.
- USDA Forest Service. 2009-2012. Annual Forest Plan monitoring and evaluation reports Fiscal Years 2008-2011. Kootenai National Forest, Libby, MT.
- USDA Forest Service. 2011. Kootenai Food Storage and Sanitation Order. 5 pp.
- USDA Forest Service. 2011. Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones. Final Supplemental Environmental Impact Statement. 495 p.
- USDA Forest Service. 2011. Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones. Record of Decision. 74 p.
- U.S. Fish and Wildlife Service. 2011. Biological Opinion on the Forest Plan amendments for motorized access management within the Selkirk and Cabinet-Yaak grizzly bear recovery zones on the Kootenai, Idaho Panhandle, and Lolo National Forests. US Fish and Wildlife Service: Kalispell, MT and Spokane, WA Field Offices. Errata sheet incorporated on February 15, 2012.
- USDI Fish and Wildlife Service. 1993. Grizzly Bear Recovery Plan. Denver Colorado. 176 pp.

USDI Fish and Wildlife Service. 2013. 50 CFR part 17. Endangered and Threatened Wildlife and Plants; Threatened Status for the Distinct Population Segment of the North American Wolverine Occurring in the Contiguous United States; Establishment of a Nonessential Experimental Population of the North American Wolverine in Colorado, Wyoming, and New Mexico; Proposed Rules. Federal Register, February 4, 2013. v 78(23): 7864-7890.

USDI Fish and Wildlife Service. 2013a. 50 CFR part 17. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical habitat for the Contiguous U.S. Distinct Population Segment of the Canada Lynx and Revised Distinct Population Segment Boundary; Proposed Rules. Federal Register, September 26, 2013. v 78(187): 59430-59474.

Wakkinen, W. and W. Kasworm. 1997. Grizzly bear and road density relationships in the Selkirk and Cabinet-Yaak recover zones. USFWS and IDFG. Unpublished report. 31 p.

Wilson, R.M. 2001. Letter identifying which species will be included in consultation based on project location.

Appendix A. Addendum to Forest Plan Appendix 8. Motorized Access Management Direction, Kootenai National Forest

From Forest Plan Access Amendment (2011):

- I. The following access management standards would apply to individual BMUs within the Cabinet-Yaak Recovery Zone on the KNF:
 - A. The OMRD, TMRD, and percent Core standards displayed in Table 1 (of the Access Amendment) would be established for the BMUs in the Cabinet-Yaak Ecosystem.

Table 12: Project Compliance with Access Amendment/Forest Plan Standards for Grizzly Bear

STANDARD	PROJECT COMPLIANCE
Plan Standard for BMU 6 $OMRD \geq 1 \text{ mi/mi}^2 = 34\% \text{ max}$ $TMRD \geq 2 \text{ mi/mi}^2 = 32\% \text{ max}$ $Core \geq 55\%$	Post implementation Post Implementation for BMU 6 $OMRD \geq 1 \text{ mi/mi}^2 = 29\% \text{ (meets)}$ $TMRD \geq 2 \text{ mi/mi}^2 = 32\% \text{ (meets)}$ $Core = 56\% \text{ (meets)}$
Plan standard for BMU 7 $OMRD \geq 1 \text{ mi/mi}^2 = 26\% \text{ max}$ $TMRD \geq 2 \text{ mi/mi}^2 = 23\% \text{ max}$ $Core \geq 63\%$	Post Implementation for BMU 7 $OMRD \geq 1 \text{ mi/mi}^2 = 24\% \text{ (meets)}$ $TMRD \geq 2 \text{ mi/mi}^2 = 23\% \text{ (meets)}$ $Core = 63\% \text{ (meets)}$
Establishment of Core <ol style="list-style-type: none"> a. Core areas include high quality habitat within a BMU that contains no motorized travel routes or high use trails. b. Core areas do not include any gated or restricted roads but may contain roads that are impassable due to re-growth of vegetation, effective barriers other than gates, or placement of logging or forest debris so as to no longer function as a motorized route. c. When possible, Core areas would be delineated by identifying and aggregating the full range of seasonal habitats that are available in the BMU. d. Core size (no minimum size required, but percent and size of Core areas should be displayed) 	BMUs 6 and 7 Core areas: Include high quality habitat with no motorized travel or high use trails. No gated or restricted roads are included. All seasonal habitats are represented Existing Condition: BMU 6 average core block size = 2,150 acres Largest block = 27,067 acres, smallest = 1 acre BMU 7 average core block size = 3,949 Largest block = 15,176 acres; smallest = 1 acre During Project: BMU 6 average core block size = 2,308 acres Largest block = 27,067 acres; smallest = 1 acre BMU 7 average core block size = 3,922 acres Largest block = 15,115; smallest = 1 acre Post Project: BMU 6 average core block size = 2,543 acres Largest block = 27,067 acres; smallest = 1 acre BMU 7 average core block size = 3,972 acres Largest block = 15,115 acres; smallest = 1 acre
Once route closures to create Core areas are established and effective, these Core areas should remain in place for at least 10 years.	This is included as a design criteria
Cabinet Face BORZ: <ol style="list-style-type: none"> a. No increase in permanent linear miles of open road. Existing condition = 129.5 miles. b. No net permanent increases in linear miles of total roads. Existing condition = 164.6 miles. 	<ol style="list-style-type: none"> a. During project temporary increase to 139.6 miles. Post project condition = 129.5 miles. Meets. b. No change. Post project condition = 164.6 miles. Meets.

B. Parameters for establishing and managing Core habitat in all BMUs:

1. In accordance with IGBC (1998) and Selkirk/Cabinet-Yaak Ecosystem Subcommittee (1998) direction, Core areas shall be established for the purpose of providing secure habitat for grizzly bears.
 - a. Core areas include high quality habitat within a BMU that contains no motorized travel routes or high use trails.
 - b. Core areas do not include any gated or restricted roads but may contain roads that are impassable due to regrowth of vegetation, effective barriers other than gates, or placement of logging or forest debris so as to no longer function as a motorized route.
 - c. When possible, Core areas would be delineated by identifying and aggregating the full range of seasonal habitats that are available in the BMU.
 - d. The IGBC anticipated that minimum Core area size might be determined for each recovery zone. For the Selkirk/Cabinet-Yaak Grizzly Bear Recovery Zones, no scientifically based minimum effective size polygon for Core area has been determined (Wakkinen and Kasworm 1997), though minimum block sizes of 2-8 mi² were suggested. Therefore, discounting small or narrow blocks of core area is not prudent at this time. Individual project analyses would disclose the percent and size of core areas in each BMU.
 - e. Once route closures to create Core areas are established and effective, these core areas should remain in place for at least 10 years. Therefore, except for emergencies or other unforeseen circumstances requiring independent section 7 consultation, newly created Core area shall not be entered for at least 10 years after creation.
 - f. Roads that are closed, decommissioned, or barriered in the future to create Core area would be put in a condition such that a need for motorized access for maintenance is not anticipated for at least 10 years. Until such closed roads are placed in the above-described condition, they would not be considered as contributing to Core area.
2. Entering Core area blocks for road decommissioning or stabilization activities:
 - a. Without further section 7 consultation on grizzly bears, the Forest Service may affect underlying core area habitat within a BMU once per 10-year time frame for the sole purpose of completing road decommissioning/stabilization activities on existing closed or barriered roads in core habitat.
 - b. Subsequent needs to re-enter individual core areas within a BMU more frequently than once per decade for the purposes of road decommissioning shall be handled on a case-by-case basis through standard section 7 consultation procedures. The effects of additional entries would be analyzed pursuant to such project level consultation. Pending the outcome of each analysis, additional measures to minimize potential effects to grizzly bears may be required.
3. Routine forest management may be proposed in a core area block after 10-years of core area benefit. However, BMUs must remain at or above the core standard. Therefore, potential losses to existing core must be compensated with in-kind replacement concurrently or prior to incurring the losses. Such in-kind replacement of core would be established within the affected BMU in accordance with the direction in Part I.B.1., above. For exceptions, see specialized circumstances outlined in Part I.D. concerning BMUs that exceed standards. Following management, core areas must subsequently be managed undisturbed for 10 years.

C. Parameters for BMUs currently not meeting core area, OMRD, and/or TMRD standards:

1. These BMUs are anticipated to be brought up to standards in the following manner: 33 percent of those BMUs currently not meeting one or more standard within each ecosystem are estimated to meet all standards within three years of the amendment decision date; 66 percent of those BMUs currently not meeting one or more standard within each ecosystem are estimated to meet all standards within 5 years of the amendment decision date, and 100 percent of those BMUs currently not meeting one or more standard within each ecosystem are estimated to meet all standards within eight years of the amendment decision date.

D. For those BMUs currently meeting or exceeding (being better than) the standards for core area:

1. Except as provided above for road stabilization projects, no reductions in core habitat without in-kind replacements would be proposed until all BMUs administered by the IPNF, KNF and LNF in the respective ecosystems are up to standard (Table 1).
2. Once all BMUs meet all standards then subsequent projects that propose to permanently reduce core area by roads shall undergo independent section 7 formal consultation.
3. Reductions of core area within individual BMUs shall not reduce the percent core area below the minimum standards for the affected BMU without compensating with in-kind replacement concurrently or prior to incurring the losses (see Part I.B.3.).

E. Road use associated with completing administrative activities:

1. In the Cabinet-Yaak Ecosystem:
 - a. Administrative use shall not exceed 60 vehicle round trips per active bear year per road, apportioned as follows: ≤ 18 round trips in spring (April 1 through June 15); ≤ 23 round trips in summer (June 16 through September 15); and ≤ 19 round trips in fall (September 16 through November 30).
 - b. If the number of trips exceeds 60 trips per active bear year in the Cabinet-Yaak ecosystem, then that road would be considered "open" for analysis and reporting purposes. Likewise, if the number of trips exceeds the allowable ecosystem-specific seasonal (spring, summer, and fall) vehicle round trips per road, then that road would be considered "open" for analysis and reporting purposes.

The Cabinet Face BORZ polygon is not in MS 1, 2, or 3 in the KNF Forest Plan since it falls outside the grizzly bear recovery zone. Addendum to Forest Plan Appendix 8 (Access Amendment 2011) includes the Motorized Access Management Direction for the KNF. The Addendum provides direction for access management within BORZ areas as follows:

Effects to bears outside the recovery zone is determined by analyzing miles of linear road including open and total road miles (Access Amendment 2011). The Access Amendment design elements include the following standards with respect to BORZ:

- II. The following access management applies to four grizzly bear recurring use areas (i.e., BORZ areas) located outside of the Cabinet-Yaak Grizzly Bear Recovery Zone on the KNF:
 - A. The Forests shall ensure no increases in permanent linear miles of open road on National Forest System lands in any individual BORZ, above the baseline conditions identified in Table [16], except in cases where the Forest Service lacks discretion to prevent road building across National Forest System lands due to legal or other obligations (examples include, but are not limited to, ANILCA claims, identification of RS2477 thoroughfares). Potential increases in linear miles of open roads must be compensated for with in-kind

reductions in linear miles of open road concurrently with, or prior to, project implementation with the same BORZ.

Temporary increases in linear miles of open roads are acceptable under the following conditions:

1. Roads that are closed to public motorized use or roads created or reconstructed to facilitate land management activities that are otherwise closed to public use may be “opened” to the public immediately following completion of all mechanized harvest and post-harvest slash activities requiring use of the road, to allow motorized public use during the bear summer season prior to the fall bear hunt (i.e., June 16 – August 31) for activities such as personal firewood collection. This public access would only be provided in cases where the mechanized harvest and/or post-harvest slash activities occurred during the same active bear year.
- B. The Forest shall ensure no net permanent increases in linear miles of total roads in any individual BORZ area above the baseline conditions identified in Table 16, except in cases where the Forest Service lacks discretion to prevent road building across National Forest System lands due to legal or other obligations (examples include, but are not limited to, ANILCA claims, identification of RS2477 thoroughfares, etc.). Otherwise, potential increases in linear mile of total roads must be compensated for with in-kind reductions in linear total road miles concurrently with, or prior to, new road construction or reconstruction of currently bermed or barriered roads.

Temporary increases (not off-set) in linear miles of total roads are acceptable under the following conditions:

1. Temporary increases in linear miles of total roads are acceptable under the following conditions:
 - a. Newly constructed roads would be restricted with a CFR closure clarifying they are not open for public use.
 - b. These roads shall be closed immediately upon completion of activities requiring use of the road, except as described in Part II.A.1., above. Roads must be closed with a berm, guardrail or other measure that effectively prevents motorized access, and put in a condition such that a need for motorized access for maintenance is not anticipated for at least 10 years.
 - c. Upon completion of a land management project, linear miles of total roads would be returned to or below the baseline levels contained in Table 6.
 - C. Timber harvest activities that would occur within multiple watersheds shall be scheduled such that disturbance of grizzly bears resulting from road use is minimized. The appropriate scale for scheduling harvest activities would be determined pursuant to project level consultation.
- III. To ensure the effective implementation of the open road density parameter, at least 30 percent of closure devices (gates and barriers) will be monitored annually within the Cabinet-Yaak ecosystem. Monitoring techniques may include visual checks as well as road counters.

Appendix B

CHRONOLOGY OF GRIZZLY BEAR MANAGEMENT SINCE 1993 RECOVERY PLAN

In July 1994, the Interagency Grizzly Bear Committee (IGBC) issued a Task Force Report which directed the IGBC subcommittees from each recovery zone to develop recommended parameters for road densities and core habitat using the best biological information and considering the social and economic impacts. In July 1995, the USFWS issue an amended Biological Opinion (BO) and Incidental Take Statement on the KNF and LNF Forest Plans (USDI 1995).

The Selkirk/Cabinet-Yaak Subcommittee chartered the Access Management Task Group in July 1996. The Task Group was directed to complete access recommendations by January 1997. This task group met nearly monthly for well over a year. The task group used research by local grizzly bear research scientists Wayne Kasworm (USFWS) and Wayne Wakkinen (Idaho Department of Fish and Game (IDFG), held several public meetings to discuss the research and understand the social concerns, and completed an effects analysis looking at the social and management impacts to implementing a new access strategy. The Access Management Task Group presented the final effects analysis to the Subcommittee in February 1998 (Wakkinen and Kasworm 1997).

The Subcommittee put together an Implementation Group to determine how the Forests would proceed with the implementation of the new Rule Set. In September 1998, the Subcommittee decided not to make “final” changes to the Forest Plans at that time, but rather to implement “interim” guidelines to be in place for three years and/or until Forest Plan revisions were completed. The Subcommittee approved the Interim Access Rule Set in December 1998 (Selkirk Cabinet-Yaak Subcommittee of the Interagency Grizzly Bear Committee 1998) and began implementation in January 1999.

In the spring of 1999, the Alliance for the Wild Rockies filed a lawsuit challenging the Kootenai and Idaho Panhandle National Forests implementation of the Interim Rule Set without amending their Forest Plans. The Forests settled the lawsuit in March 2001 and agreed to amend their respective Forest Plans to address grizzly bear management.

In April of 2001, the USFWS issued an amended Biological Opinion (BO) and Incidental Take Statement on the IPNFs Forest Plan (USDI Fish and Wildlife Service 2001a). On March 2002, the FS issued a final Environmental Impact Statement (EIS) for amending access standards to the Forest Plans for the KNF, IPNFs, and LNF (USDA Forest Service 2002a). In May 2002, the Biological Assessment was sent to the USFWS (USDA Forest Service 2002b). This document used 2000 data for its baseline information in the individual Bear Management Units.

Meanwhile, by 2002, agency biologists recognized that grizzly bears were occurring and sometimes living in areas outside of established grizzly bear recovery zones and warranted some level of management consideration (Wittinger, unpublished report, October 9, 2002; Wittinger, unpublished report May 13, 2003).

By March of 2003, the Kootenai National Forest, Lolo National Forest, and Idaho Panhandle National Forest responded to this new information (Johnson, unpublished report March 2003), in cooperation with the USFWS. Each Forest had to determine an estimate of bear numbers, analyze habitat conditions relative to linear open and total road densities on eight very large analysis areas (bear outside recovery zone or “BORZ” polygons), analyze food attractant and storage problems in each analysis area, and evaluate conflicts between grizzly bear and livestock grazing in each area. In addition, the analysis had to display all steps to minimize “incidental take”, based on existing management direction. At that time, that delineation included a larger area within the Miller West Fisher project area.

In February 2004, the USFWS produced a BO in response to the BA for the access amendment. The BO presented the baseline in the BMUs using more recent 2002 information supplied by the KNF, IPNFs, and LNF. In March of 2004, the Record of Decision for the EIS was signed which amended the Forest Plans for the three forests. The BO also contained terms and conditions and an incidental take statement for considering grizzly bears outside of recovery zones in the specific BORZ polygons mentioned above. Two subsequent lawsuits against the Forest Service and USFWS in November and December of 2004 resulted in one favorable ruling for the Forest Service from the Montana District Court in August of 2006. However, the District Court ruled against the Forest Service in December of 2006 on one issue and remanded the matter back to the Forest Service for preparation of a new environmental analysis. That ruling effectively removed the habitat parameter standards established in the March 2004 FS decision. This meant that the standards and analyses in place prior to the Access Amendment again became the levels for effects analysis. These remained in place until the new final access amendment EIS and ROD were completed. The USFWS subsequently withdrew its BO in May of 2007.

In 2007 the Forest Service began preparation of a supplemental environmental impact statement for the access amendment. The Libby Ranger District began work on the Miller West Fisher Project in 2006, and published a Record of Decision in June 2009. At the time of that decision, the Cabinet Face BORZ was larger and differently shaped than what it is now.

A lawsuit was filed against the Forest Service on the Miller West Fisher project and two others on the Kootenai National Forest in November 2009. In June 2010, the District Court ruled against the Forest Service and USFWS and ordered the projects remanded for further analysis. Meanwhile, numerous meetings and discussions between the Forest Service and USFWS had occurred from 2007 to 2010 for the revised access amendment, during which delineation of areas receiving recurring grizzly bear use outside the recovery zone was a recurring topic. In the summer and fall of 2009, the parties revisited the original 2002 BORZ delineation in order to have the best available information for the final SEIS and clarified how the delineation was completed in terms of available biological information, boundary delineation, and naming of individual BORZ areas. In 2002-2003, the BORZ lines were broadly drawn at the time and recognized that there had been credible sightings within the previous 10-20 years (1982-2002).

However, the best biological and physical evidence available in late 2009 through 2010 indicated that portions of the previously delineated BORZ did not meet the criteria to be considered as occupied by grizzly bears. Recent sightings or other evidence of bears (tracks, scat, etc.) were lacking, and there was no pattern of recent use (1995-2010) for a large portion of the original BORZ. As a result, a portion of the Cabinet Face BORZ was dropped from consideration as occupied (Grizzly Bear Access Amendment-Recurring Use Area Delineation meeting 9/28/2009). This new information is the best available and carried into this analysis for potential effects to grizzly bears.

APPENDIX C

LIMITATIONS of the WAKKINEN STUDY

Introduction

The ESA requires federal agencies to base their actions on the use of best scientific and commercial data available [16 U.S.C. 1536(a) (2)]. The best available scientific information regarding the access management in grizzly bear habitat is considered to include two primary sources. One of these is the information gathered from research of the South Fork of the Flathead River regarding how road access affects grizzly bears (Mace and Manley 1993, Mace and Waller 1997). This research resulted in development of OMRD, TMRD, and Core area as management measures for ensuring grizzly bear habitat security for the Northern Continental Divide Ecosystem Grizzly Bear Recovery Area. The second source is research from local bear populations that applies the South Fork of the Flathead River research techniques to the Selkirk and Cabinet-Yaak Recovery Zones (Wakkinen and Kasworm 1997). The Wakkinen and Kasworm report (1997) was peer reviewed by nine biologists, whose comments were incorporated in the final report. Wayne Kasworm is a grizzly bear researcher with the USFWS who has 30 years of experience studying grizzly bears in the Selkirk Cabinet-Yaak Recovery Zone, and Wayne Wakkinen is a grizzly bear researcher with the Idaho Department of Fish and Game who has over 20 years of experience monitoring grizzly bear populations in this recovery zone. This research resulted in development of OMRD, TMRD, and Core area as management measures for ensuring grizzly bear habitat security for the Selkirk/Cabinet-Yaak Grizzly Bear Recovery Areas.

The Interagency Grizzly Bear Committee (IGBC) recommended that information on OMRD, TMRD, and Core area be incorporated into the management of grizzly bears and that each grizzly bear ecosystem develop ecosystem-specific guidelines using local data where possible (IGBC 1998). Based on the IGBC's recommendation, the Forest Service and USFWS reviewed research from the South Fork Flathead study (Mace and Manley 1993) and the Selkirk/Cabinet-Yaak study (Wakkinen and Kasworm 1997). The research data from radio-collared grizzly bears in the Selkirk/Cabinet-Yaak Ecosystems was used to determine the appropriate levels of these three parameters (Wakkinen and Kasworm 1997). These numbers were generated with local data, which the Forest Service and the USFWS considers the best available local information (see 2002 FEIS, pages 4-29 and 30, and Johnson 2007a).

A detailed look at Wakkinen and Kasworm (1997), a review of other applicable grizzly bear management scientific studies (Johnson 2007a), and a review of other applicable science was completed. The following discussion discloses the limitations of the Wakkinen Study:

- 1. The study authors (Wakkinen and Kasworm 1997), were uncertain whether the bears they studied had chosen optimal habitat or whether they simply chose the best available habitat; and assess the relevance and importance of this uncertainty.**

Wakkinen and Kasworm did not assess if grizzly bears selected home ranges with fewer roads relative to road densities across the Selkirk/Cabinet-Yaak Ecosystem because a detailed route map was not available for the entire ecosystem. Instead, this study determined bear use of areas greater or lesser than expected within existing home ranges relative to access route density (i.e., third order selection). Because of this, it is not possible to conclude whether the 33 percent OMRD, 26 percent TMRD, and 55 percent Core area conditions in the Selkirk/Cabinet-Yaak

Ecosystem represent the optimal selection of habitat by bears or if these numbers simply reflect the condition of the environment from which they have to choose (i.e., do bears in either ecosystem have the opportunity to choose areas with less road density or more Core area?). However, in examining the juxtaposition of the four Selkirk study animal home ranges, it is apparent that wilderness areas (Salmo Priest) and roadless areas were available for use by grizzly bears but were not incorporated into their home ranges for the duration of the study. In addition, seasonal habitat selection of preferred habitats in relation to roads was not completed in the 1997 research due, in part, to small sample sizes and availability of data. Wakkinen and Kasworm

(1997) recommend that the proximity of quality or limited habitat be considered when defining road closures. Subsequent graduate work using the 1989-1991 Selkirk data was recently completed (Sloan 2008), but the value of the resource selection modeling does not reflect more recent grizzly bear habitat use. This is particularly true for the spring season (Wakkinen pers. comm. 2009).

Despite the uncertainty as to why individual bears in these studies selected the habitat they did, it can be reasonably concluded that areas of lower road densities or providing higher amounts of Core area does not necessarily guarantee lower mortality rates. Two of the bears sampled in the Wakkinen and Kasworm (1997) study died from human causes after the study was complete. One died more than two miles behind a gated road in an area of low open road density⁵ and the second was killed in a Core area. Likewise, Mace et al. (1996) revealed the death of eight marked grizzly bears by humans in the Northern Continental Divide Ecosystem study area, with Mace and Waller (1998) documenting mortality rates that were 15 times higher for bears using the wilderness area than for bears using only multiple-use lands in the same study area. Ultimately, the desired habitat conditions are those that are conducive to producing survivors, which contribute toward recovery (e.g., produce offspring that produce offspring). In the case of the Wakkinen and Kasworm study, multiple offspring have been identified as progeny from the Yaak study area adult female 106 (i.e., female offspring 206, 303, and 353) (Kasworm et al. 2009). All three of these female offspring are known to have produced cubs between 1994 and 2002 (ibid), and there is circumstantial evidence that an additional female offspring bear, bear 354⁶, also survived and produced cubs (Kasworm 2003). One of these, female 206, was also part of the 1997 road study. In addition, Selkirk study females 867 and 1015 are known to have produced offspring that survived to maturity (ibid).

Thus, the relevant question is, whether grizzly bears are successful in producing offspring and survivors that will contribute toward recovery of the species within the respective ecosystem? Recent research from Wakkinen and Kasworm (2004) indicates that survival rates for Selkirk Recovery Zone adult and subadult females and cubs and Cabinet-Yaak Recovery Zone adult females are within the range of rates reported for other interior grizzly bear populations. Conversely, survival rates for Selkirk Recovery Zone yearlings and Cabinet-Yaak Recovery Zone subadult females, yearlings, and cubs fell below survival estimates reported elsewhere (ibid).

2. Misgivings of the USFWS biologist over the 33/26/55 standards.

The USFWS (2004) stated that the average individual home ranges in the Wakkinen and Kasworm report (1997) provided the best available indication of the habitat conditions used by grizzly bears in the Selkirk/Cabinet-Yaak Ecosystem. These values were based on: 1) a high percentage of the total Ecosystem's female grizzly bear population, 2) female grizzly bears that survived to adulthood, and 3) females in the Ecosystem that successfully reproduced.

However, an individual USFWS biologist in the Spokane office expressed a different opinion, regarding the resulting habitat parameter values derived from the individual home range analysis, than that of other USFWS biologists and the agency itself (i.e., 33 percent OMRD, 26 percent TMRD, and 55 percent Core area). The biologist did not concur with the minimum 55 percent Core area suggested by the Selkirk/Cabinet-Yaak Ecosystem Access Task Group. The biologist suggested using an arithmetic mean from the Selkirk/Cabinet-Yaak and North Continental Divide Ecosystem data (i.e., the Flathead National Forest Amendment No. 19--hereafter referred to as Flathead NF Amendment No. 19 (U.S. Forest Service 1994a and 1994b)), without conducting any analysis or considering whether the data was compatible.

⁵ This bear was killed by a hunter that walked the two-plus miles behind the closed gate before encountering this female and her two young-of-the-year cubs (Allen and Carr 2009).

⁶ Born in 1995 and sibling to 353.

The USFWS has acknowledged these criticisms in the Access Amendment project, concluding that combining results from the two research efforts is not appropriate due to significant differences in analysis techniques.

3. Findings of other studies measuring habitat parameters in other ecosystems.

The 1997 Wakkinen and Kasworm study was completed using standardized techniques that were developed from research findings for the *South Fork Flathead River Grizzly Bear Project* (Mace and Manley 1993). This research, and its subsequent publications (Mace et al. 1996 and Mace and Waller 1997), and reanalysis for the Flathead National Forest Plan Amendment provide an appropriate study for comparison of the Selkirk/Cabinet-Yaak Ecosystem research.

Sample Sizes: While the sample sizes obtained by Wakkinen and Kasworm (1997) were small (six successful females, including one subadult that became an adult and reproduced during the study), the results were consistent with those found in similar studies conducted in the Northern Continental Divide Ecosystem (Mace and Manley 1993, Mace et al. 1996, and Mace and Waller 1997). These results were based on 9 and 13 female grizzly bears (1993, 1996 and 1997, respectively) and included 5 that were monitored as subadults for a portion of the monitoring period. The reanalysis for the Flathead NF Amendment No. 19 included only seven females in its development of their standards⁷. In addition, the research data for the Northern Continental Divide Ecosystem study (Mace and Manley 1993), like the Wakkinen and Kasworm research data, included at least one female offspring that successfully reproduced (i.e., offspring that produced offspring). Reproduction from offspring is one indication of habitat capable of producing survivors that contribute to potential population increase.

Proctor et al. (2008) describes the trapping difficulty to get a larger sample size in the Purcell Mountain Ecosystem of southeastern British Columbia, Canada, especially for female grizzly bears. Given that the researchers are attempting to study a small population, there is a “paradox that we’re trying to understand and predict use of habitat by females in an ecosystem where they are critically low” (Ibid).

Road Density Parameters: Road density used by female grizzly bears in the Flathead NF Amendment No. 19 reanalysis of seven grizzly bears were lower and bear use of unroaded habitat was higher (USDA Forest Service 1994a, 1994b; USDI Fish and Wildlife Service 1995). However, the highways, county roads, and numerous private property roads were not included in their analysis. These differences in habitat availability and the available roads database would have likely resulted in larger Core areas and smaller OMRDs and TMRDs being reported. Conversely, Mace et al. (1996) reported a Core area of 56 percent unroaded areas which is very close to the Selkirk/Cabinet-Yaak Ecosystem average Core area of 55 percent.

Quantification of Home Range: Both studies used the same software (Calhome) to calculate home ranges based on radio locations of individual bears. However, the Northern Continental Divide Ecosystem and the Selkirk/Cabinet-Yaak Ecosystem studies approached grizzly bear habitat selection in different ways. The Northern Continental Divide Ecosystem parameters (Flathead NF Amendment No. 19; USDA Forest Service 1994a, 1994b) were developed using composite (combined) home range information, rather than the average multi-year individual home range information used by Wakkinen and Kasworm for the Selkirk/Cabinet-Yaak Ecosystem. The Northern Continental Divide Ecosystem study was conducted in a relatively small, contiguous portion of the Northern Continental Divide Ecosystem. Grizzly bear use within this ecosystem resulted in overlapping or adjacent home ranges, so the authors pooled the data into one large “home range” area. These data were used to quantify habitat selection in relation to road densities. In contrast, the Selkirk/Cabinet-Yaak Ecosystem study was conducted over a very

⁷ 19 percent OMRD, 19 percent TMRD, and 68 percent Core area (USDA Forest Service 1994a and 1994b).

large disjunct area of the Selkirk/Cabinet-Yaak Ecosystem. Wakkinen and Kasworm (1997) were unable to pool the home ranges in the same manner as Mace and Manley because they were dealing with disjunct or separate study areas with one in the Selkirk Mountain Range and one in the Yaak River valley. As a result, all the bear home ranges were not adjacent or overlapping. Therefore, values from individual bear home ranges were averaged to provide estimates of road densities and Core area.

However, the authors of the Selkirk/Cabinet-Yaak Ecosystem study believe that individual home ranges provide a better description of actual use areas available to bears than a composite home range (Kasworm et al. 2007b). The differences in calculation methods make combining the data difficult, at best, as well as biologically inappropriate. Even Mace et al. (1996) points out that pooling of individuals are not appropriate because resource availability and selection is unique to the individual bears and the individual habitats available to them. Thus, it would have been inappropriate to combine the individual values from the respective Northern Continental Divide Ecosystem and Selkirk/Cabinet-Yaak Ecosystem studies.

Importance of other Habitat Components in Home Range Selection: Mace et al. (1996) and Mace and Waller (1997) point out the importance of other habitat components as determinants of grizzly bear habitat selection. Specifically, their data emphasized that habitats were used primarily because of their attractiveness as a food source and that displacement from roads occurred as a subsidiary element of grizzly bear habitat use (e.g., spring habitat selection near roads in Mace et al. 1996, and Waller et al. unpublished). In addition, food sources differ between the ecosystems. The Northern Continental Divide Ecosystem provides army cutworms and whitebark pine seeds, which are two food sources either not present or not found in large quantity in the Selkirk/Cabinet-Yaak Ecosystem. The physical location of these food sources contributes to habitat selection, which in the case of the Northern Continental Divide Ecosystem study resulted in bears selecting higher elevation areas (typically unroaded or Core areas) where these foods are found.

Wakkinen and Kasworm (1997) did not complete an analysis of habitat selection as part of their research.

More recently, research within the adjacent Purcell Mountain Ecosystem have found results similar to those in the Wakkinen Study. Proctor et al. (2008) examine data for 5 bears in the south Purcell Mountains, which extend into northwestern Montana and shares trans-border bears with the Cabinet-Yaak portion of the Selkirk/Cabinet-Yaak Ecosystem. Proctor et al. (2008) did not examine the female grizzly's selection of home range to the whole ecosystem, but did compare it to what was available within their respective BMUs. All 3 successful females selected their individual home ranges with higher Core than available in the BMU, averaging 51% (44, 54, and 55). Even at this higher order of selection, the percent Core is similar to Wakkinen and Kasworm's 1997 study (average of 55%, ranging from 40, 53, 53, 54, 55, to 72). Open road densities are also similar between the studies, 1.2 km/km² (0.46 mi/mi²) vs. ≤ 1 mi/mi² (Proctor et al. 2008 and Wakkinen and Kasworm 1997, respectively). In contrast, 2 unsuccessful females in this ecosystem selected home ranges of only 19% and 29% Core (Proctor et al. 2008).

4. The status of grizzly bear mortality in the Selkirk and Cabinet-Yaak Recovery Zones.

Additional data on grizzly bear mortalities that occurred during and after the time of the Wakkinen and Kasworm paper (1997) is now available. This information is included in the demographics and population trends analysis (Wakkinen and Kasworm 2004) and population mortality trend calculation (Kasworm et al. 2007a) research, and subsequent mortality updates (Kasworm and Allen 2009, Johnson and Allen 2009, Wakkinen and Allen 2009). While the plaintiffs criticized the Wakkinen and Kasworm study (1997) for considering bears that died after the study was completed, the Northern Continental Divide Ecosystem studies (Mace and Manley

1993, Mace et al. 1996, and Mace and Waller 1997) also include data from bears that died during and after the study. Both studies considered information relative to bears that died shortly after the results of the study were determined. These post study mortalities do not change the levels of habitat conditions selected by grizzly bears in either ecosystem. It is not appropriate to conclude from these mortalities that selecting more secure habitat would have prevented these mortalities (as shown by the fact that some grizzly bear mortality occurs in Core areas that are greater than 500 meters from a road in both study areas) or that the habitat conditions proved "lethal" to bears. As suggested by McClellan et al. (2000), a more appropriate analysis to answer this question would be to complete an assessment of home range and habitat use for "successful" and "unsuccessful" bears to see if use patterns were similar or not⁸. As discussed previously, the relationship between habitat and mortality is indirect and habitat does not appear to be a significant factor presently in mortality of grizzly bears in the Selkirk/Cabinet-Yaak Ecosystem.

⁸ McClellan et al. 2000 provided a peer review of the South Fork Flathead River research and made the following observation, "If the 'unsuccessful' females had home range and areas of use different from 'successful' females, then the characteristics of the successful females' ranges may be considered sufficient as the basis for conservation planning. However, if the home ranges and habitat use patterns were similar, but some were just luckier or more skilled at avoiding people within their range, then the 'lucky to be successful' females may not be suitable as the basis for conservation planning. If the successful females lived in more secure areas than unsuccessful females, then it would be assumed they needed that level of security to be successful: perhaps they could have done fine with less security. Without comparing the range locations and habitat use of bears with varying levels of success "then the question of whether bears from the Swan Valley study can form the basis of a conservation strategy" remains unanswered.

Appendix D. Design Features

MILLER WEST FISHER PROJECT DESIGN FEATURES

Trails and Roads: Timber Sale Standard Provision **B(T)6.22**, Protection of Improvements, would be included in all timber sale contracts. It would require the purchaser to protect specified improvements, such as trails, roads and fences.

Unit Specific Features to Protect Trails: Units noted are from a combination of all alternatives. **Units 38 and 39** – protect Trail #505 North Fork Miller. **Burns B3, B4, B5** (Alt. 2 only) - protect Trail #117 Great Northern Mountain. **Burn B21, Units 26, 31, 29** - protect Trail #118 Miller Creek. **Units 16, 17, 121** - protect Trail #300 Teeters Peak. **Burns B8A, B8B, B11, B12B** – protect Trails #6S Divide Trail, and #532 Porcupine Ridge. **Storing Rd. 2314M** – protect Trail 6S Divide Trail. **Burn B17** – protect Trail #113 Iron Meadows. **Unit 203** (Alt. 2 only) – protect trail #110 Jumbo Peak. **Burn B19A** – protect Trail #360 Cabinet Divide. Special care will be needed along the trails to avoid damaging the tread, blaze trees, and markers/signs.

Unit Specific Features to Protect Visuals: Slash disposal adjacent to the West Fisher Rd. 231, Miller Creek Rd. 385, South Fork Miller Rd. 4724, Silver Butte Rd. 148, Miller Creek Trail 118, Standard Creek Trail 116, North Fork Miller Trail 505, Teeters Peak Trail 300, Olson Creek Trail 405, Porcupine Creek Trail 298, and Jumbo Peak Trail 110 will need to be completed to meet Forest Plan VQO's. Slash will be abated to present a natural appearance from these highly visible sites.

Proposed, Threatened, Endangered and Sensitive Plants and Wildlife: Legal and biological requirements for the conservation of endangered, threatened, proposed, candidate and sensitive plants and animals would be met. These species have been identified in cooperation with other agencies such as the USFWS and MFWP. Plant surveys would be completed prior to any ground-disturbing activities. Emphasis for surveys would be placed on areas with moderate-to-high potential to provide sensitive plant habitat. These surveys would be conducted by the District Botanist or a qualified biological technician. If any of these plant or animal species are located prior to or during implementation of any management activities, the activity would be altered so that proper protection measures could be taken. Timber sale contract provision B(T)6.25, Protection of Habitat of Endangered Species, would be included in any subsequent timber sale contract. If necessary, additional modifications would occur through creation of special treatment zones or by relocating unit boundaries to avoid negative impacts. Disturbance to any sensitive plant populations or unique animal sites observed during sale activity would be avoided through cooperation between sale administrators and sale purchaser. Surveys for PTES plants of in-stream work areas to improve pool quantity and quality will be completed before implementation.

Noxious Weeds: The following measures will be used to mitigate concerns for the spread of noxious weeds.

- Implement Forest Service manual (FSM) 2080 Noxious Weed Management Prevention and control measures.
- Certified weed-free forage is required for use on all national forest lands in Montana (36 CFR 261.50)
- Treat existing noxious weeds on roads to be reconstructed, stored, or decommissioned prior to that activity, (if possible schedule spraying two or more seasons before activities are expected to occur to reduce the amount of viable weed seed stored in the soil).
- Treat existing noxious weeds in gravel/rock pits, inspect these sources for weeds and treat before material is transported.
- Survey and pre-treat existing noxious weeds on proposed trailhead construction site, and access sites for in-stream work.
- Require weed free certified straw for all construction, reconstruction, and restoration activities.
- Seed and fertilize stored roads with certified weed free seed immediately following restoration activities.
- Limit scarification objectives to the minimum required to meet reforestation objectives.
- Pressure-wash logging equipment, road maintenance, and restoration equipment before entering the project area.
- Require timber sale purchaser to treat existing noxious weeds along haul routes during the first operational season for weed spraying (spring or early summer).
- Seed and fertilize newly constructed roads, trailheads, landings, and major skid trails with certified weed free seed.
- Prevent road maintenance machinery from blading or brushing through known populations of new invaders. In areas where weeds are established, (and activities are opening and blading restricted or closed roads with significantly lesser infestations); brush and blade road systems from un-infested segments of road systems to infested areas. Limit brushing and mowing to the minimum distance and height necessary to meet safety objectives in areas of heavy weed infestations
- Minimize soil disturbance and mineral soil exposure during activities. Soil disturbance should be no more than needed to meet project objectives. This includes not exceeding recommended mineral soil exposure for site preparation in regeneration harvest units; and utilizing timing and designated skid trails to minimize mineral soil exposure in harvest units.

- Survey proposed burn units for noxious weeds. Determine the risk of weed spread with prescribed fire. If there is a risk of spread beyond the road corridor, defer burning until the weeds can be treated or ensure post treatment funding for weed control.
- Survey proposed trailhead construction sites, proposed access for mechanized in stream work, and proposed Pronone application sites for noxious weeds. Determine the risk of spread with the associated activity. If there is risk of spread, pre-treat the area before activity.
- Continue to monitor/survey the project area for new invader weed species. Monitor weed population levels in treated areas, with particular emphasis on haul routes, stored and decommissioned roads, and landings. Retreat as funding allows.
- Treat and sign sites if new invaders are located and defer ground disturbing activities within those sites until the weed specialist determines the site is no longer a threat, and approves those activities.
- Site-specific guidelines will be followed for weed treatments within or adjacent to known sensitive plant populations. All future treatment sites would be evaluated for sensitive plant habitat suitability; suitable habitats would be surveyed as necessary prior to treatment.
- All noxious weed control activities would comply with state and local laws and agency guidelines.
- As per the Kootenai National Forest Invasive Plant Management EIS and ROD, all herbicides used in the project area would be applied according to the labeled rates and recommendations to ensure the protection of surface water, ecological integrity and public health and safety. Herbicide selection will be based on target species on the site, site factors (such as soil types, distance to water, etc), and with the objective to minimize impacts to non-target species.

Desired mitigation strategies to reduce the chance of noxious weed introduction and spread include:

- Keep administrative traffic on closed roads to a minimum. Whenever possible, time activities prior to seed set of the primary weed species or emphasis weeds on a given road.
- Consider winter logging to reduce mineral soil exposure and the chance of spreading existing noxious weeds.
- Release bio-control agents on applicable sites, as they become available, and funding allows.
- Plan follow up noxious weed treatment the spring or early summer, following final purchaser blading of all haul roads if funds allow (this will be funded with appropriated or KV dollars).
- Design road storage to allow passage of a 4-wheeler to continue treatment of hawkweeds and common tansy in the future. Hawkweed and common tansy populations will continue to expand even after the template has re-vegetated.

Soil and Water:

1) Timber Sale Contract Provisions to be Included

CT6.3 - Plan of Operations, **BT6.4**, **CT6.4** - Conduct of Logging, **BT6.42** - Skidding and yarding, **BT6.422** - Landings and Skid Trails, **BT6.6**, **CT6.6** - Erosion Prevention Control, **BT6.64** - Skid Trails and Fire Lines, **BT6.5** – Stream Course Protection, **CT6.62** - Noxious Weed Control, **BT5.2**, **CT5.2** - Specified Road Construction, **BT5.4**, **CT5.4** - Road Maintenance, **CT6.603** - Road Obliteration.

2) Best Management Practices (BMP's)

Implementation of the BMP's listed in Appendix 7.

3) Riparian Habitat Conservation Areas (RHCA's)

Implementation of the Forest Plan RHCA widths for the units shown in Appendix 4 is required to meet Forest Plan standards as amended by INFS. Also if any additional streams are found during layout they will also be buffered to meet this requirement.

4) Meet Regional Soil Quality Standards

Utilize existing skid trails, obliterate skid trails and seed in Unit 2 to ensure meeting Regional Soil Quality Standards.

Fish, including Bull Trout

Measures listed under soil and water, including implementation of BMP's and use of RHCA's as prescribed in INFS will protect fish, including bull trout. In addition, no in-stream work or sediment producing activities will take place within an RHCA from September 1 to July 14. Sediment introduction into bull trout waters within that time frame would potentially cause adverse affects to bull trout.

Forest Vegetation:

In addition to the appropriate BMP's, riparian guidelines and standard contract clauses, the following mitigation and monitoring should be included:

- a. To maintain long-term soil productivity and provide large woody material for small mammals and other wildlife species:
 - Harvest units within VRU TE02 and TE09– retain 8-15 tons per acre of coarse woody debris (CWD) or standing recruitment on site after harvest and/or fuels treatment.
 - Harvest units within VRU TE03- retain 15-20 tons per acre of CWD or standing recruitment on site after harvest and/or fuels treatment.
 - Harvest units within VRU TE05 - retain 17-25 tons per acre of CWD or standing recruitment on site after harvest and/or fuels treatment.
- b. CWD should be left scattered across the unit, not concentrated. Piece size should exceed 3" in diameter but preference is for larger material where possible. This material originates from unutilized portions of designated trees, cull materials, broken tops, etc.
- c. All harvest units will be designed to retain adequate levels of snags, and replacement snags to provide for cavity-associated wildlife species, genetic seed reservoirs, relic overstory, and long-term soil productivity. Replacement trees would be scattered throughout harvest units to the extent possible. Where available, a minimum of two snags and two replacement snags per acre will be retained. If large ponderosa pine or western larch snags are felled for safety purposes, they will be retained on site. Silvicultural and burning prescriptions would be prepared with the goal of protecting large diameter snags, and retaining recommended levels and distribution of coarse woody material during site preparation and fuels treatment.
- d. All tractor harvest units with an intermediate harvest prescription will have designated skid trails to facilitate removal of designated material while minimizing damage to less than 15% of the residual trees.
- e. Skyline logging systems will be required on steep units that have an intermediate treatment or shelterwood harvest, to minimize damage to leave trees.
- f. Soil productivity will be maintained through one of the following:
 1. Utilize skyline or helicopter systems;
 2. Follow Best Management Practices;
 3. Utilize designated skid trails or limit dispersed skidding to dry or frozen soil conditions.

Wildlife:

1. To prevent snags and broken top trees within old growth stands from being felled for safety reasons, no harvest unit landings will be located adjacent to old growth stands.
2. Because no existing snags will be marked to leave in helicopter or skyline units, replacement trees will be marked for future snag and down wood potential. Larger diameter trees will be preferred. Where remnant large diameter mistletoe-infected larch occur, girdling will be necessary after harvest is completed to protect larch seedlings from becoming infected.
3. On those tractor units where snags are marked, safety hazard snags may be cut but they must be left on site within the unit to provide for large down wood recruitment.
4. Tractor units that will not have existing snags marked will be identified and additional replacement trees with future snag characteristics marked.
5. Logging on MA 10 lands will follow guidelines described by the Forest Plan may include additional protection measures designated by the project biologist based on site specific information about elk and deer use in the PSU. These include: winter logging may occur December 1 through March 1st; no harvest activity will occur during green-up period (generally March 1st through May 30th); if elk calving is known, no activity will occur until at least June 15th.
6. All restricted roads would remain closed anytime timber sale activity is not occurring behind the barrier. This decreases the potential for loss of cavity habitat trees and trees within stands to firewood cutting, and helps mitigate potential displacement of big game as a result of timber harvest activities.
7. No timber harvest or associated activity would be permitted on roads restricted to motorized vehicles from 10/15-12/1, general rifle hunting season.
8. If any key habitat features are found during layout, such as wallows and wet meadows, a cover buffer of at least two sight distances, or a minimum of 300 feet would be maintained around them.
9. On roads restricted to motorized traffic, motorized access to accomplish thinning activities is restricted to 14 consecutive days or less. These roads will still be considered closed and ORD's will not change. Thinning activities behind restricted roads will not occur during critical periods (October 15 to June 30).
10. For all action alternatives, firearms, archery equipment etc. will not be permitted behind any gated road accessed for the timber harvest. This mitigation measure for grizzly bears will help reduce the potential increase in human-caused mortality risk associated with the proposed activity.
11. For grizzly bear mitigation, timing activities for timber harvest include no activities during the spring period, April 1st to June 15th. Any prescribed burning that would take place would limit helicopter activity to 1 to 2 days, with no heavy ground equipment being used.
12. All garbage at the logging sites will be removed in a timely manner to avoid potential wildlife conflicts.

13. Units analyzed as winter logging and not impacting grizzly bear, would remain as winter logging during implementation of the sale. If season of activity or method of harvest is changed such that the activity would occur within the active bear year, additional analysis would be required.
14. Required mitigation for Alternative 6 includes the required timing that all activities in Subdivision A, occurring on roads #4725 and 808E, are completed and these roads stored before activity on the remaining units in Alternative 6 can occur. Additionally, all Montanore activity for power line construction, should it be needed on road 4725, will be completed before these roads are closed and stored.
15. The timber sale contract will contain the contract clause CT 6.251 Protection of Endangered Species (4/90) as amended, which allows the government to cancel or unilaterally modify the timber sale should unanticipated impacts to TES species become a risk.
16. In LAU 14502 field surveys utilizing Bertram and Claar (2008) methods for measuring horizontal cover would occur in those units with portions located in multi-story mature or late successional habitat before burning. If horizontal cover is being provided that portion of the unit will not be ignited. These are Alt 2 units B12 (38 acres), B18 (10 acres), B19 (43 acres), and B20 (39 acres), Alt 4, 6 and 7 units B19A (43 acres) and B20 (39 acres).
17. In LAU 14503 field surveys utilizing Bertram and Claar (2008) methods for measuring horizontal cover would occur in those units with portions located in multi-story mature or late successional habitat before burning. If horizontal cover is being provided that portion of the unit will not be ignited. These are Alt 2 units B10 (2 acres), B8 (48 acres) and B11 (26 acres), B1 (27 acres), B2 (21 acres) and B6 (50 acres). Alternative 4, 6, and 7 units are Unit B8B (15 acres), and Unit B11 (26 acres) and Unit B6 (50 acres).
18. In LAU 14503 field surveys utilizing Bertram and Claar (2008) methods for measuring horizontal cover would occur in those units with portions located in multi-story mature or late successional habitat before timber harvest. If horizontal cover is being provided the unit will be modified or dropped. For Alt 2 these are Units 38, 116, 132, and 133, and for Alternatives 2, 4, 6, and 7 these are units 39, 117, 118A, 118B, and 119.

Cultural Resources: Cultural resource surveys were completed on all treatment units. The action alternatives were designed to protect known cultural sites, provide for protection of sites discovered during implementation, and protect treaty rights. These concerns would be addressed through ongoing consultation with tribal representatives. Appropriate Timber Sale Contract Provisions would be included in any timber sale contract. The appropriate provision specifies that the Forest Service may modify or cancel the contract to protect cultural resources, regardless of when they were identified.

Appendix E – Timber Harvest Treatment Summary of Alternative 6-modified

Alternative 6-Modified Vegetation and Fuel Treatments

UNIT	ACRES	VEGETATION TREATMENT	LOGGING SYSTEM	WINTER LOGGING REQUIRED	MA
MILLER CREEK					
2	25	ST/GP/PLT	T		15
3	25	CC/ST/UB/PLT	S		15
4	13	ST/CC/UB/PLT	S		15
8A	38	ST/UB/PLT	S	X	15
10	39	SW/UB/PLT	S	X	15
11	20	CC/R/UB/PLT	T		15
12	40	ST/UB/PLT	S		15
15	34	IMP/YT	S		12, 15
20	8	CC/ST/GP/PLT	T		12
21	75	IMP/YT	T/S		12
25	65	IMP/YT	S		12
26	49	IMP/YT	S	X	12
26A	15	IMP/YT	S		12
37	9	IMP/UB	T		12
38	17	IMP/YT	S		18
39	39	ST/UB/PLT	S		11
47	37	IMP/YT	T	X	11, 18
48	16	IMP/YT	T		11, 18
49	21	ST/UB/PLT	S		11
52	15	CC/ST/UB/PLT	S		11
53	70	IMP/UB	T		11
61	17	ST/R/UB/PLT	S/T		12
WEST FISHER					
101	27	IMP/UB	T	X	11, 24
111	40	ST/UB/PLT	S	X	11, 12
112	33	IMP/UB	T/S	X	12, 18
113	119	IMP/UB	S/T	X	11, 12
114A	25	ST/GP/PLT	T	X	11
114B	8	ST/GP/PLT	T		11
116	19	CC/ST/UB/PLT	S		11
117	40	ST/UB/PLT	S		12
118A	35	ST/UB/PLT	T		11
118B	18	ST/GP/PLT	T		11, 12
119	58	IMP/YT	T		12
120	54	IMP/YT	T		12
121	80	IMP/YT	T		12
122	59	IMP/YT	T		12
123	89	IMP/YT	T/S		12, 14
124	57	IMP/YT	T		14
125	27	CC/R/GP/PLT	T		14, 12
128	27	IMP/YT	S		12
129	36	ST/UB/PLT	T		14

UNIT	ACRES	VEGETATION TREATMENT	LOGGING SYSTEM	WINTER LOGGING REQUIRED	MA
130	27	ST/UB/PLT	T		14
SILVER BUTTE					
201	15	CC/R/UB/PLT	T		11
202	6	CC/R/UB/PLT	T		11
TOTAL	1,898				

Key: IMP – Improvement Cut UB = Underburning PLT = plant SW = Shelterwood YT = Yard Tops
 ST = Seed Tree GP = Grapple pile H = Helicopter Yarding S = Skyline T = Tractor Yarding

Miller West Fisher DSEIS

